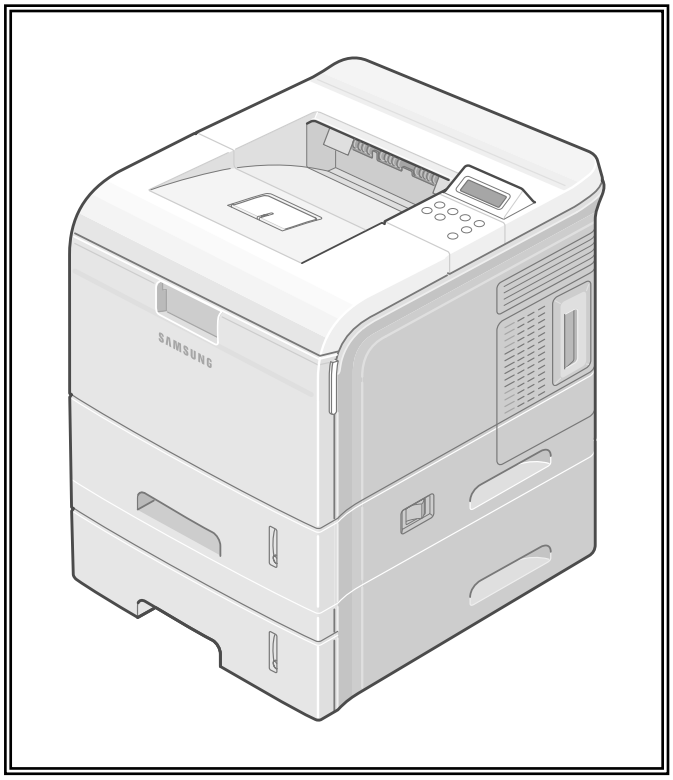
SAMSUNG

DIGITAL LASER PRINT
ML-3560 Series
ML-3561N/XAA

Basic Model : ML-3560

SERVICE *Manual*

DIGITAL LASER PRINT



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1. Precautions

In order to prevent accidents and to prevent damage to the equipment please read the precautions listed below carefully before servicing the printer and follow them closely.

1.1 Safety Warning

(1) Only to be serviced by appropriately qualified service engineers.
High voltages and lasers inside this product are dangerous. This printer should only be serviced by a suitably trained and qualified service engineer.

(2) Use only Samsung replacement parts
There are no user serviceable parts inside the printer. Do not make any unauthorized changes or additions to the printer, these could cause the printer to malfunction and create electric shock or fire hazards.

(3) Laser Safety Statement
The Printer is certified in the U.S. to conform to the requirements of DHHS 21 CFR, chapter 1 Subchapter J for Class 1(1) laser products, and elsewhere, it is certified as a Class I laser product conforming to the requirements of IEC 825. Class I laser products are not considered to be hazardous. The laser system and printer are designed so there is never any human access to laser radiation above a Class I level during normal operation, user maintenance, or prescribed service condition.

Warning >> Never operate or service the printer with the protective cover removed from Laser/Scanner assembly. The reflected beam, although invisible, can damage your eyes. When using this product, these basic safety pre-cautions should always be followed to reduce risk of fire, electric shock, and injury to persons.

CAUTION - INVISIBLE LASER RADIATION WHEN THIS COVER OPEN. DO NOT OPEN THIS COVER.

VORSICHT - UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GE FFNET. NICHT DEM STRAHL AUSSETZEN.

ATTENTION - RAYONNEMENT LASER INVISIBLE EN CAS D OUVERTURE. EXPOSITION DANGEREUSE AU FAISCEAU.

ATTENZIONE - RADIAZIONE LASER INVISIBILE IN CASO DI APERTURA. EVITARE L ESPOSIZIONE AL FASCIO.

PRECAUCION - RADIACION LASER IVISIBLE CUANDO SE ABRE. EVITAR EXPONERSE AL RAYO.

ADVARSEL. - USYNLIG LASERSTR LNING VED BNING, N R SIKKERHEDSBRYDERE ER UDE AF FUNKTION. UNDG UDSAETTELSE FOR STR LNING.

ADVARSEL. - USYNLIG LASERSTR LNING N R DEKSEL PNES. STIRR IKKE INN I STR LEN. UNNG EKSPONERING FOR STR LEN.

VARNING - OSYNLIG LASERSTR LNING N R DENNA DEL R PPNAD OCH SP RREN R URKOPPLAD. BETRAKTA EJ STR LEN. STR LEN R FARLIG.

VARO! - AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA N KYM TT M LLE LASER-S TEILYLLE L KATSO S TEESEEN.

注 意 - 严禁渴开此盖, 以免激光泄露灼伤

주 의 - 이 덮개를 열면 레이저광에 노출될 수 있으므로 주의하십시오.

1.2 Caution for safety

1.2.1 Toxic material

This product contains toxic materials that could cause illness if ingested.

(1) If the LCD control panel is damaged it is possible for the liquid inside to leak. This liquid is toxic. Contact with the skin should be avoided, wash any splashes from eyes or skin immediately and contact your doctor. If the liquid gets into the mouth or is swallowed see a doctor immediately.

(2) Please keep toner cartridges away from children. The toner powder contained in the toner cartridge may be harmful and if swallowed you should contact a doctor.

1.2.2 Electric Shock and Fire Safety Precautions

Failure to follow the following instructions could cause electric shock or potentially cause a fire.

(1) Use only the correct voltage, failure to do so could damage the printer and potentially cause a fire or electric shock.

(2) Use only the power cable supplied with the printer. Use of an incorrectly specified cable could cause the cable to overheat and potentially cause a fire.

(3) Do not overload the power socket, this could lead to overheating of the cables inside the wall and could lead to a fire.

(4) Do not allow water or other liquids to spill into the printer, this can cause electric shock. Do not allow paper clips, pins or other foreign objects to fall into the printer these could cause a short circuit leading to an electric shock or fire hazard..

(5) Never touch the plugs on either end of the power cable with wet hands, this can cause electric shock. When servicing the printer remove the power plug from the wall socket.

(6) Use caution when inserting or removing the power connector. The power connector must be inserted completely otherwise a poor contact could cause overheating possibly leading to a fire. When removing the power connector grip it firmly and pull.

(7) Take care of the power cable. Do not allow it to become twisted, bent sharply round corners or other wise damaged. Do not place objects on top of the power cable. If the power cable is damaged it could overheat and cause a fire or exposed cables could cause an electric shock. Replace a damaged power cable immediately, do not reuse or repair the damaged cable. Some chemicals can attack the coating on the power cable, weakening the cover or exposing cables causing fire and shock risks.

(8) Ensure that the power sockets and plugs are not cracked or broken in any way. Any such defects should be repaired immediately. Take care not to cut or damage the power cable or plugs when moving the machine.

(9) Use caution during thunder or lightening storms. Samsung recommends that this machine be disconnected from the power source when such weather conditions are expected. Do not touch the machine or the power cord if it is still connected to the wall socket in these weather conditions.

(10) Avoid damp or dusty areas, install the printer in a clean well ventilated location. Do not position the machine near a humidifier. Damp and dust build up inside the machine can lead to overheating and cause a fire.

(11) Do not position the printer in direct sunlight. This will cause the temperature inside the printer to rise possibly leading to the printer failing to work properly and in extreme conditions could lead to a fire.

(12) Do not insert any metal objects into the machine through the ventilator fan or other part of the casing, it could make contact with a high voltage conductor inside the machine and cause an electric shock.

1.2.3 Handling Precautions

The following instructions are for your own personal safety, to avoid injury and so as not to damage the printer

(1) Ensure the printer is installed on a level surface, capable of supporting its weight. Failure to do so could cause the printer to tip or fall.
(2) The printer contains many rollers, gears and fans. Take great care to ensure that you do not catch your fingers, hair or clothing in any of these rotating devices.
(3) Do not place any small metal objects, containers of water, chemicals or other liquids close to the printer which if spilled could get into the machine and cause damage or a shock or fire hazard.
(4) Do not install the machine in areas with high dust or moisture levels, beside on open window or close to a humidifier or heater. Damage could be caused to the printer in such areas.
(5) Do not place candles, burning cigarettes, etc on the printer, These could cause a fire.

1.2.4 Assembly / Disassembly Precautions

Replace parts carefully, always use Samsung parts. Take care to note the exact location of parts and also cable routing before dismantling any part of the machine. Ensure all parts and cables are replaced correctly. Please carry out the following procedures before dismantling the printer or replacing any parts.

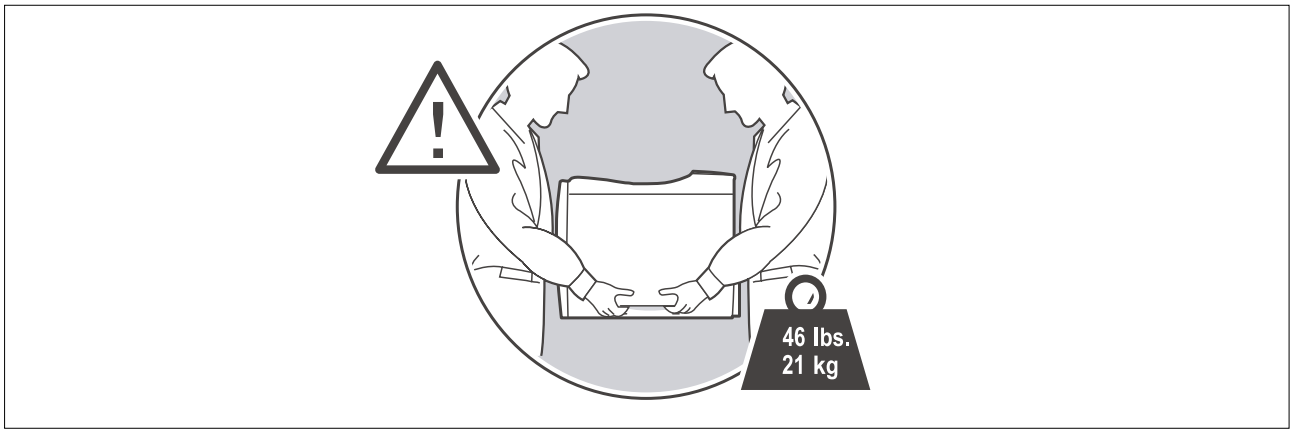
(1) Check the contents of the machine memory and make a note of any user settings. These will be erased if the mainboard or network card is replaced.
(2) Ensure that power is disconnected before servicing or replacing any electrical parts.
(3) Disconnect printer interface cables and power cables.
(4) Only use approved spare parts. Ensure that part number, product name, any voltage, current or temperature rating are correct.
(5) When removing or re-fitting any parts do not use excessive force, especially when fitting screws into plastic.
(6) Take care not to drop any small parts into the machine.
(7) Handling of the OPC Drum
- The OPC Drum can be irreparably damaged if it exposed to light.
  Take care not to expose the OPC Drum either to direct sunlight or to fluorescent or incandescent room lighting. Exposure for as little as 5 mins can damage the surface's photoconductive properties and will result in print quality degradation. Take extra care when servicing the printer. Remove the OPC Drum and store it in a black bag or other lightproof container. Take care when working with the covers(especially the top cover) open as light is admitted to the OPC area and can damage the OPC Drum.
- Take care not to scratch the green surface of OPC Drum Unit.
  If the green surface of the Drum Cartridge is scratched or touched the print quality will be compromised.

1.2.5 Disregarding this warning may cause bodily injury

(1) Be careful with the high temperature part.
The fuser unit works at a high temperature. Use caution when working on the printer. Wait for the fuser to cool down before disassembly.

(2) Do not put finger or hair into the rotating parts.
When operating a printer, do not put hand or hair into the rotating parts (Paper feeding entrance, motor, fan, etc.). If do, you can get harm.

(3) When you move the printer.
This printer weighs 21kg including toner cartridge and cassette. Use safe lifting and handling techniques. Use the lifting handles located on each side of the machine. Back injury could be caused if you do not lift carefully.



(4) Ensure the printer is installed safely.
The printer weighs 21Kg, ensure the printer is installed on a level surface, capable of supporting its weight. Failure to do so could cause the printer to tip or fall possibly causing personal injury or damaging the printer.

(5) Do not install the printer on a sloping or unstable surface. After installation, double check that the printer is stable.

1.3 ESD Precautions

Certain semiconductor devices can be easily damaged by static electricity. Such components are commonly called “Electrostatically Sensitive (ES) Devices”, or ESDs. Examples of typical ESDs are: integrated circuits, some field effect transistors, and semiconductor “chip” components.

The techniques outlined below should be followed to help reduce the incidence of component damage caused by static electricity.

Caution >>Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

1. Immediately before handling a semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, employ a commercially available wrist strap device, which should be removed for your personal safety reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ESDs, place the assembly on a conductive surface, such as aluminum or copper foil, or conductive foam, to prevent electrostatic charge buildup in the vicinity of the assembly.
3. Use only a grounded tip soldering iron to solder or desolder ESDs.
4. Use only an “anti-static” solder removal device. Some solder removal devices not classified as “anti-static” can generate electrical charges sufficient to damage ESDs.
5. Do not use Freon-propelled chemicals. When sprayed, these can generate electrical charges sufficient to damage ESDs.
6. Do not remove a replacement ESD from its protective packaging until immediately before installing it. Most replacement ESDs are packaged with all leads shorted together by conductive foam, aluminum foil, or a comparable conductive material.
7. Immediately before removing the protective shorting material from the leads of a replacement ESD, touch the protective material to the chassis or circuit assembly into which the device will be installed.
8. Maintain continuous electrical contact between the ESD and the assembly into which it will be installed, until completely plugged or soldered into the circuit.
9. Minimize bodily motions when handling unpackaged replacement ESDs. Normal motions, such as the brushing together of clothing fabric and lifting one’s foot from a carpeted floor, can generate static electricity sufficient to damage an ESD.

Memo

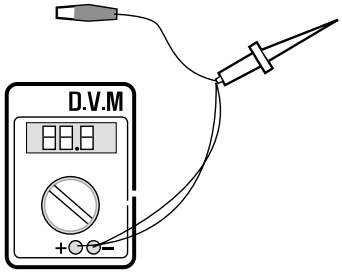
2. Reference Information

This chapter contains the tools list, list of abbreviations used in this manual, and a guide to the location space required when installing the printer. A definition of tests pages and Wireless Network information definition is also included.

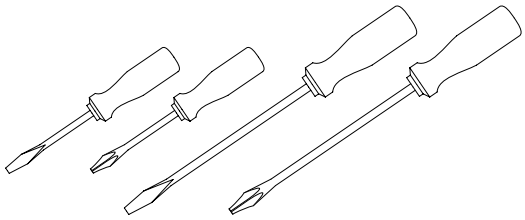
2.1 Tool for Troubleshooting

The following tools are recommended safe and easy troubleshooting as described in this service manual.

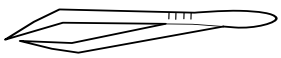
- **DVM (Digital Volt Meter)**
  Standard : Indicates more than 3 digits.



- **Driver**
  Standard : "-" type, "+" type (M3 long, M3 short, M2 long, M2 short).

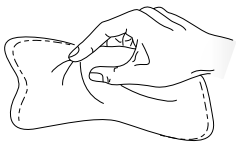


- **Tweezers**
  Standard : For general home use, small type.

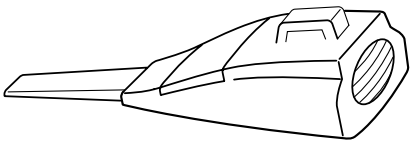


- **Cotton Swab**
  Standard : For general home use, for medical service.

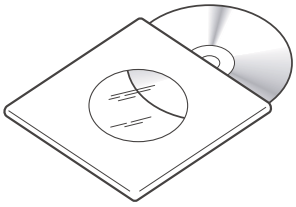
- **Cleaning Equipments**
  Standard : An IPA(Isopropyl Alcohol)dry wipe tissue or a gentle neutral detergent and lint-free cloth.



- **Vacuum Cleaner**



- **Software (Driver) installation CD ROM**



2.2 Acronyms and Abbreviations(1)

The table below explains the abbreviations and acronyms used in this service manual. Where abbreviations or acronyms are used in the text please refer to this table.

Abbreviations	Explanation
AP	Access Point
AC	Alternating Current
APC	Auto Power Control
ASIC	Application Specific Integrated Circuit
ASSY	assembly
BIOS	Basic Input Output System
BLDC	Brush-less Direct Current
CMOS	Complementary Metal Oxide Semiconductor
CN	connector
CON	connector
CPU	Central Processing Unit
dB	decibel
dBA	decibel A
dBM	decibel milliwatt
DC	direct current
DCU	Diagnostic Control Unit
DPI	Dot Per Inch
DRAM	Dynamic Random Access Memory
DVM	Digital Voltmeter
ECP	Enhanced Capability Port
EDC	Embedded Diagnostic control
EEPROM	Electronically Erasable Programmable Read Only Memory
EMI	Electro Magnetic Interference
EP	electrophotographic
EPP	Enhanced Parallel Port
FPOT	First Printout Time
F/W	firmware
GDI	graphics device interface
GND	ground
HBP	Host Based Printing
HDD	Hard Disk Drive
H/H	High temperature and high marshy place
HV	high voltage
HVPS	High Voltage Power Supply
I/F	interface
I/O	Input and Output
IC	integrated circuit
IDE	Intelligent Drive electronics or Imbedded Drive Electronics

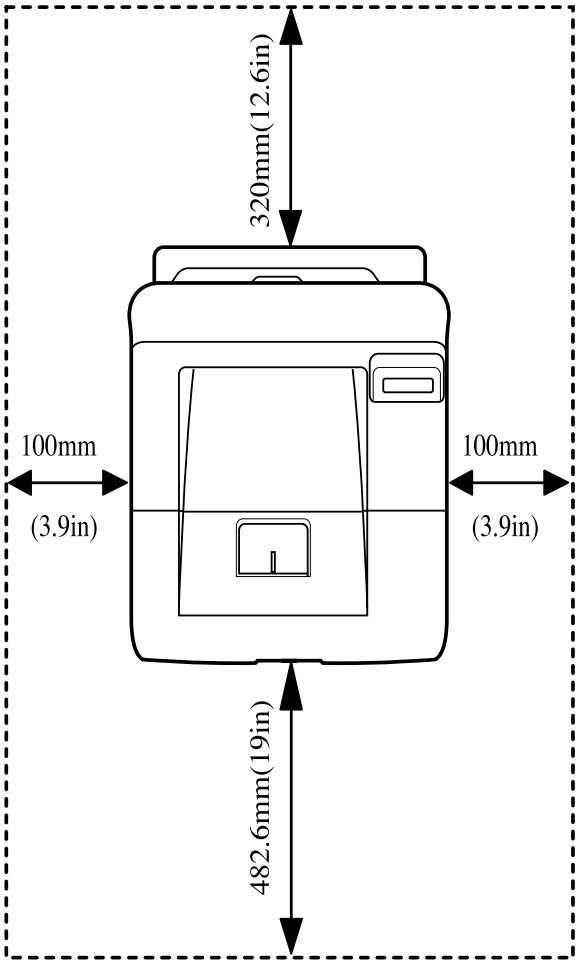
Acronyms and Abbreviations(2)

Abbreviations	Explanation
IEEE	Institute of Electrical and Electronics Engineers. Inc
IPA	Isopropy Alcohol
IPM	Images Per Minute
LAN	local area network
lb	pound(s)
LBP	Laser Beam Printer
LCD	Liquid Crystal Display
LED	Light Emitting Diode
L/L	Low temperature and low marshy place
LSU	Laser Scanning Unit
MB	megabyte
MHz	megahertz
MPF	Multi Purpose Feeder
NIC	Network Interface Card
N/N	Normal temperature and normal marshy place
NVRAM	nonvolatile random access memory
OPC	Organic Photo Conductor
OP	Operation Panel Equipment
PBA	Printed Board Assembly
PCL	Printer Command Language , Printer Control Language
PDL	Page Discription Language
PPM	Page Per Minute
PPS	Pulse Per Second
PS	Post Script
PTL	Pre-Transfer Lamp
PWM	Pulse Width Modulation
Q-PID	Quick Printer Initiating Device
Q'ty	quantity
RAM	Random Access Memory
ROM	Read Only Memory
SCF	Second Cassette Feeder
SMPS	Switching Mode Power Supply
SPGP	Samsung Printer Graphic Processor
SPL	Samsung Printer Language
Spool	Simultaneous Peripheral Operation Online
SW	switch
sync	synchronous or synchronization
USB	Universal Serial Bus
WECA	Wireless Ethernet Compatibility Alliance

2.3 Select a location for the printer

- Leave enough room to open the printer trays, covers, and allow for proper ventilation. (see diagram below)

- Provide the proper environment :
  - A firm, level surface
  - Away from the direct airflow of air conditioners, heaters, or ventilators
  - Free of extreme fluctuations of temperature, sunlight, or humidity
  - Clean, dry, and free of dust



2.4 Sample Tests Patterns

The sample patterns shown below are the standard test patterns used in the factory.
The life of the toner cartridge, developer cartridge and printing speed are measured with the pattern shown below (5%). The A4 ISO 19752 standard pattern samples are reproduced reduced to 70% of the actual A4 size.

ABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890ABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890ABCDEFG

HIJKLMNOPQRSTUVWXYZ1234567890ABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890ABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890

Stephen J. Singel
Labanda Sinpat Abarress
Tendar, BSF
URANGLE

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27 March 2003

Jonathan Q. Maderia

Inpert Mampem Abaress
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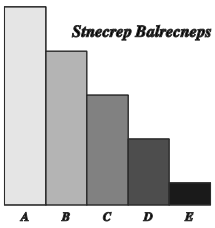

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2.5 Wireless LAN

• This product can be used with a wireless LAN (Option)

- The wireless LAN function uses radio technology, instead of using LAN cable, to connect to an access point for printing.
- For a wireless LAN connection in Infrastructure mode an AP is needed, (purchased separately)
- For a wireless LAN connection in Ad-Hoc mode an appropriate Wireless I/F card is required fitted to a computer, (purchased separately)
- It is possible to use a wireless LAN connection with wired LAN.
- If an AP is installed in an office or at home, the wireless LAN function can be simply configured and used.

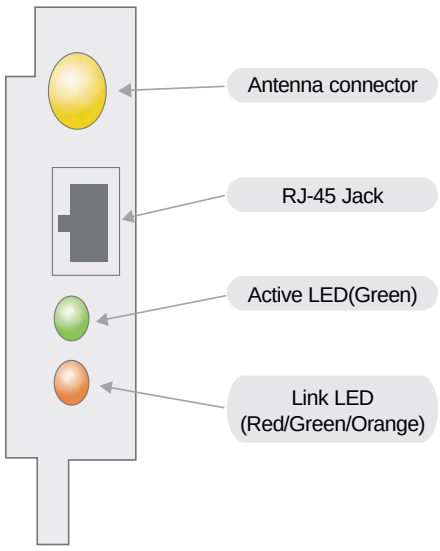
• Types of desk top PC (or Lap top) that uses the wireless LAN.

Division	Basic type	Recommend type
CPU	Over PENTIUM 233M	PENTIUM 300MHz
MEMORY	Over 64MB	Over 128MB
VIDEO CARD	Over 800X600	Over 1024X768
OS	Over WINDOWS 98	Over WINDOWS ME
INTERFACE CARD	A product has a certificated mark of Wi-Fi™	

• About the certificated mark of Wi-Fi™

- Wi-Fi™ is a registered trademark of the WECA (Wireless Ethernet Compatibility Alliance). Over 50 wireless LAN companies are member of this organisation. Most of the main wireless networking companies are attending including such companies as Lucent Technologies, Cisco, Intel/Symbol, 3Com, Enterasys (Cabletron), Compaq, IBM, Nokia, Dell, Philips, Samsung Electronics, Sony, Intersil, etc.. This mark certifies mutual compatibility amongst the product of these companies. Wi-Fi™ (IEEE 802.1) is certified as a standard of the wireless LAN market.

• LED Condition and Status



[LED STATUS]

LED Condition	Status
Active LED random blink	Normal NPC &Normal packet receive
Active LED regular blink	Normal NPC &No Packet
Active LED Off/On maintenance	NPC Initial inferiority
Link LED On	The link LED On OPC,Normally linked (Red:Wireless,Green:Wire,Orange:Wire/Wireless)
Link LED Off	Link LED off NPC,Link Inferiority

3. Specifications

Product specifications are subject to change without notice.See below for product specifications.

3.1 General Specifications

ITEM	DESCRIPTION	
Print Method	Non-impact Electro-photography	
Development system	Non-Magnetic, Mono-Component, Non-Contact Developing System	
Transfer system	Conductive roller transfer	
Fuser Unit(Toner fix)	Pressure and Heating with e-coil	
*Print Speed	Up to 33 PPM in A4 size	
	Up to 35 PPM in Letter size	
Resolution	Up to 1200 x 1200 DPI effective output	
Source of Light	Laser diode (LSU : Laser Scanner Unit)	
Warm-Up Time	Power-on boot : 40 seconds	
First Print Time	9 seconds or less	
Feed Method	Cassette & Manual, Option Feeder(SCF)	
duplex	Optional	
Media Size	76mm * 128mm(3 * 5") to 216mm * 356mm(8.5 *14")	
Media Thickness	16 ~ 28 lb(60 to 105g/m^2), Manual : 16 ~43lb(60 to 163g/m^2)	
Dimension(W X D X H)	396 X 453 X 348 mm / 15.6" X 17.8" X 13.7" inch (without options)	
Weight	Net : 17.5 Kg with print cartrige	
	Gross : 21 Kg	
**Acoustic Noise	Stand by : Less than 35 dB	
	Printing: Less than 55 dB	
	Sleep mode : Background Noise	
Power save mode	Enable	
Toner save mode	Enable	
Consumable Parts	Retard Roller	Up to 150,000 Pages
	Transfer Roller	Up to 70,000 Pages
	Fuser Assembly	Up to 80,000 Pages
	Toner Sensor	Yes(dot counting)
	Toner Type	Non-Magnetic toner
	Toner Initial	6,000 pages@ISO 5% coverage
	Toner sale	6,000 or 12,000 pages@ISO 5% coverage
Optional Parts	Optional Tray	Paper Capacity : 500 Sheets
	Wired NPC	Ethernet 10/100 base TX
	(ML-3560/ML-3561N : Optional ML-3560 : Basic)	Protocols : TCP/IP, SPX/IPX, Ethertalk, SNMP, HTTP1.1, DLC/LLC 8MB RAM Buffer for faster graphics performance 2MB Flash Memory for upgrade Throughput : 200 ~ 300K TCP/IP
	SDRAM DIMM	32, 64, 128, 256MB 100PIN SDRAM DIMM
	Wireless NPC (Option)	IEEE802.11b supportT Speed : 11, 5.5, 2, 1 Mbps Operation range : 30m(Indoors), 150m(Outdoors)
	Duplex Unit	

* Print speed will be affected by Operating System used, computing performance, application software, connecting method, media type, media size and job complexity.

** Sound Pressure Level, ISO 7779

3.2 Controller Specification

ITEM	DESCRIPTION
Processor(CPU)	SPGPv3 400Mhz
Memory	NAND FLASH 32MB
	RAM : 32MB
	Option DIMM module : 32, 64, 128, 256MB (SDRAM)
	100Pin SDRAM DIMM (Use only Samsung Memory Parts made specifically for this printer.)
	EEPROM(NVRAM) : 4Kbyte
Emulation	PCL6 : Win9x/ME/NT4.0/2000/XP
	Postscript Level3 : MAC OS 8.6 ~ 9.2/10.1 ~ 10.3
	PCL5e : Various Linux OS including Red Hat, Caldera, Debian, Mandrake, Slackware, SuSE and Turbo Linux
Interface	Parallel : IEEE 1284 Bidirectional Parallel - Modes supported : Compatible,Nibble,Byte,ECP
	USB(without HUB mode) -USB 2.0 compliant -High Speed
	Network Interface : - 10/100 Base TX - 802.11b Wireless LAN
Interface switching	Automatic
Interface time-out	999 seconds
Font	45 Scalable Font , 1 Bitmap Font ,Postscript 3 internal font 136

3.3 Electrical Specification

ITEM	DESCRIPTION		REMARK
Input Voltage	Nominal input voltage	220-240 VAC / 110~127VAC	
	Input voltage range	198-254 VAC/ 99~135VAC	
	Nominal frequency	50/60 MHz	
	Frequency tolerance	+3Hz	
Power Consumption	Printing : 600W(average)		
	Sleep : under 12W		

3.4 TONER Cartridge (Developer)

ITEM	DESCRIPTION	REMARK
Life span	Starter: Up to 6,000 pages	A4 Size, @ISO 5% Coverage, SIMPLEX
	Replacement : Up to 12,000 pages	
Developing	Non Contact Developing	
Charging	Conductive Roller Charging	
Toner supply Method	Not possible, replace the whole print cartridge.	
Toner checking sensor	Fitted	
Ozone	0.1PPM or less	
Style	Single cartridge	

3.5 Environmental Condition

ITEM	OPERATING	STORAGE
Temperature	10~30˚C(50-90˚F)	-20~40˚C (-4~104˚F)
Humidity	20~80%RH	10~80%RH

3.6 Paper Handling Specifications

>> Input Paper Size

Supported Paper, Transparencies, and Other Specialty Media

PAPER TYPE/SIZE	DIMENSIONS	TRAY 1(MPT)	TRAY 2	TRAY3	2-SIDED PRINTING
Letter	8.5 x 11 in.	O	O	O	O
Legal	8.5 x 14 in.	O	O	O	O
US Folio	8.5 x 13 in.	O	O	O	O
A4	210 x 297 mm	O	O	O	O
B5-JIS	182 x 257 mm	O	O	O	
ISO-B5	176 x 250 mm	O	O	O	
A5	148 x 210 mm	O	O	O	
Executive	7.25 x 10.5 in.	O	O	O	
Statement	5.5 x 8.5 in	O			
US Postcard	3.5 x 5.5 in	O			
Index Card	3 x 5 in	O			
A6 Postcard	105 x 148 mm	O			
Envelopes					
Monarch	3.88 x 7.5 in.	O			
#10 Commercial	4.13 x 9.5 in.	O			
C5	162 x 229 mm	O			
C6	114 x 162 mm	O			
DL	110 x 220 mm	O			
Transparencies					
Letter	8.5 x 11 in.	O	X	X	X
A4	210 x 297 mm	O	X	X	X
Labels					
Letter	8.5 x 11 in.	O			
A4	210 x 297 mm	O			
Custom	Width = 76~216 mm (3~8.5 in.); Length = 127~356 mm (5~14 in.)	O			

Tray 1 (MPT) Weight : 60~163 g/m 2 (16~43 lb.)
Tray 2 and 3 Weight : 60~105 g/m 2 (16~28 lb.)
Duplex Weight : 75~90 g/m 2 (20~24 lb.)

O : Supported

>> Input capacity

ITEM	DESCRIPTION	
Cassette	Paper	500 sheets (75gr)
MP tray	Paper	100 sheets (75gr)
	Transparencies	50 sheets
	Envelopes	10 sheets
	Labels	25 sheets
Option Cassette	500sheets (75gr)	

>> Output capacity

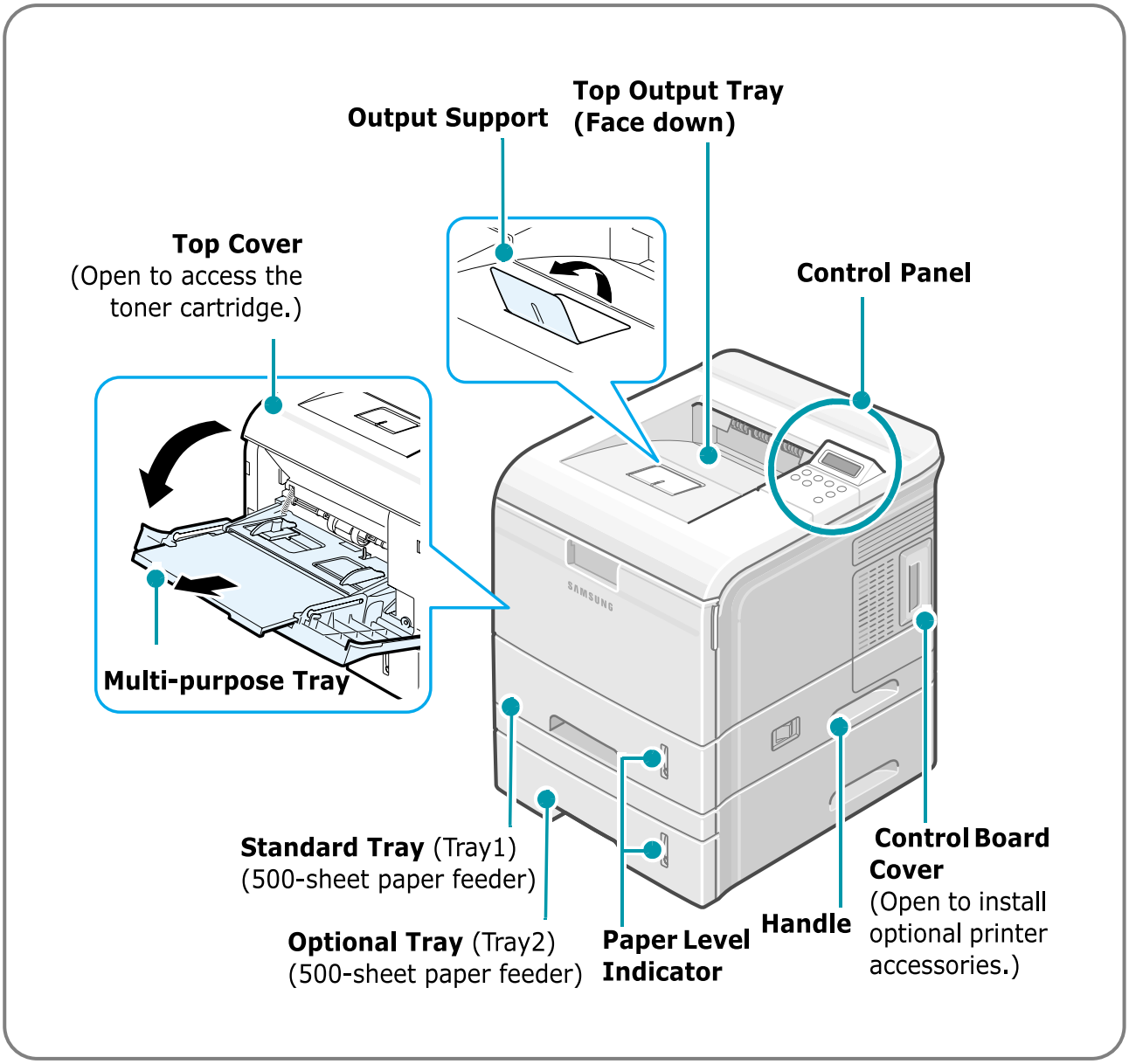
ITEM	DESCRIPTION
Face Down(Top) tray	250 sheets
Face UP(Rear) tray	100 sheets

4. Summary of Product

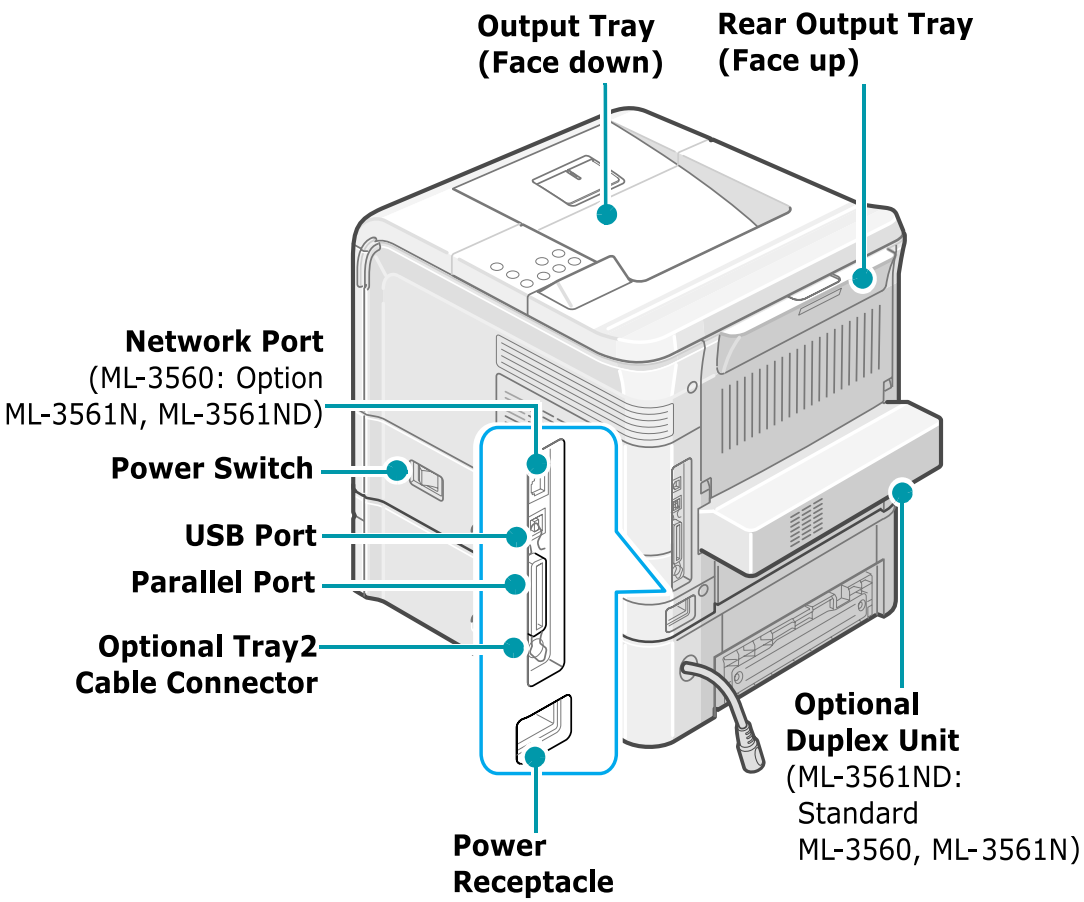
This chapter describes the functions and operating principal of the main component.

4.1 Printer Components

4.1.1 Front View

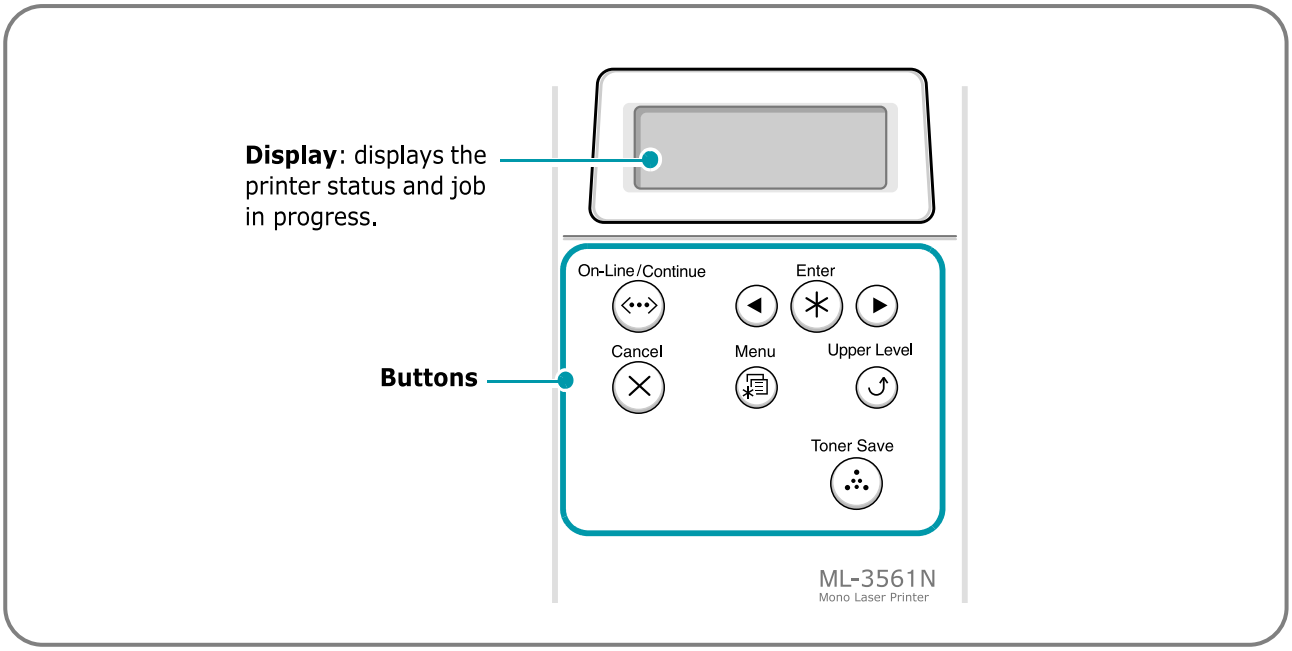


4.1.2 Rear View



4.1.3 Control Panel

The control panel on the top right side of your printer has the display and the nine buttons.

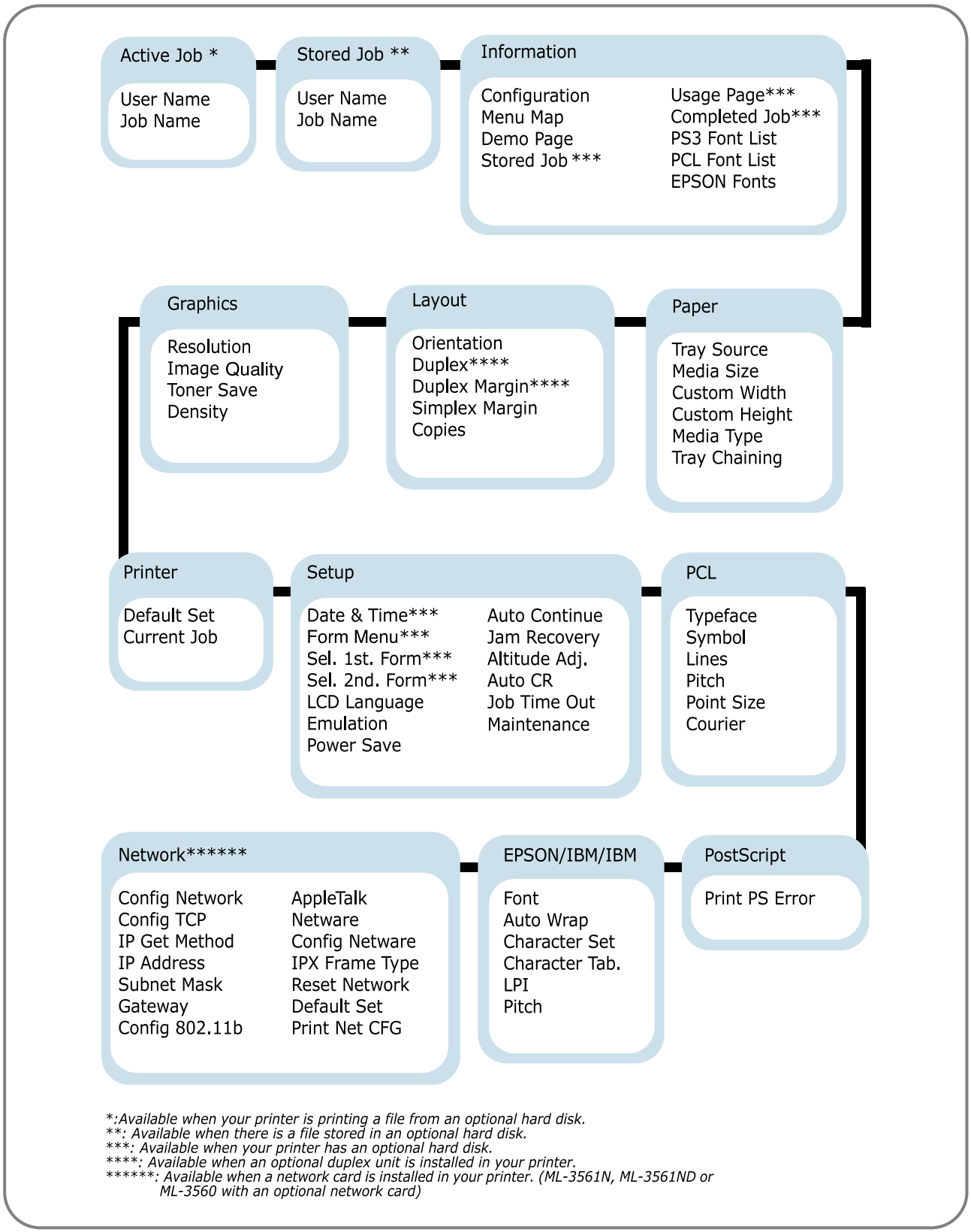


4.1.3.1 Display

Message	Description
Ready	• The printer is on-line and ready to print. • If you press the **On Line/Continue** button (⇢), the printer goes to off-line.
Offline	• The printer is off-line and cannot print. • If you press the **On Line/Continue** button (⇢), the printer switches to on-line.
Printing XXX * *xxx is the current emulation.*	• The printer is printing. • If you want to stop printing, press the **Cancel** button (⊗).
Sleeping...	• The printer is in the Power Save mode, consuming less power. When a print job is received from the computer, or if any button is pressed, the printer switches to on-line. • To deactivate the Power Save mode or change the power-saving time.

4.1.3.2 Overview of Control Panel Menus

The control panel menus are used to configure the printer for your environment.



*:Available when your printer is printing a file from an optional hard disk.
**: Available when there is a file stored in an optional hard disk.
***: Available when your printer has an optional hard disk.
****: Available when an optional duplex unit is installed in your printer.
******: Available when a network card is installed in your printer. (ML-3561N, ML-3561ND or ML-3560 with an optional network card)

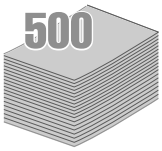
4.1.3.3 Special Features

Your new printer is equipped with special features that improve the print quality,giving you a competitive edge.
You can:

Print with excellent quality and high speed

- You can print at 1200 dots per inch (dpi).
- Your printer prints 35 pages-per-minute (Letter size), 33 pages-per-minute (A4 size).

Handle paper flexibly



- A 100-sheet Multi-Purpose Tray supports letterheads, envelopes,labels,transparencies,custom-sized materials,postcards,and heavy paper.
- Standard 500-sheet input tray (Tray1)and optional 500-sheet input tray (Tray2)supports all standard sizes of paper.
- Two output tray;select either the top output (face-down)or the rear output tray (face-up)for the most convenient access.
- Straight-through paper path capability from the Multi-Purpose Tray to the rear output tray.

Create professional documents

- You can customize your documents using **Watermarks,** such as “Confidential.”
- Print **Booklets** .This feature enables you to easily print the pages required to create books.Once printed,all you have to do is to fold and staple the pages.
- Print **Posters** .The text and pictures of each page of your document are magnified and printed across the selected sheet of paper.After the document has printed,trim off the white edges of each sheet.Tape the sheets together to form a poster.

Save your time and money

- This printer allows you to use **Draft** to save toner.
- You can print on both sides of the paper to save paper (double-sided printing).
- You can print multiple pages on one single sheet of paper to save paper (N-Up printing).
- Preprinted forms and letterheads can be printed on plain paper.
- This printer automatically conserves electricity by substantially reducing power consumption when not printing.
- This printer meets Energy Star guidelines for energy efficiency.

Expand the printer capacity

The following printer options and supplies are available for Phaser 3500 printers:

Item	Part Number
32 Mbytes additional RAM memory	ML-05MB/SEE
64 Mbytes additional RAM memory	ML-05MC/SEE
128 Mbytes additional RAM memory	ML-05MD/SEE
256 Mbytes additional RAM memory	ML-05ME/SEE
Network Interface Card (NIC)	-
Duplex Unit	-
500-Sheet Feeder (includes tray)	-
Standard-Capacity Print Cartridge (6,000 pages @ 5% area coverage)	ML-3560D6
High-Capacity Print Cartridge (12,000 pages @ 5% area coverage)	ML-3560DB

Print in various environments

USB UNIVERSAL SERIAL BUS

- You can print in Windows 95/98/Me/NT 4.0/2000/XP .
- Your printer is compatible with Linux and Macintosh .
- Your printer comes with both the Parallel and USB interfaces.

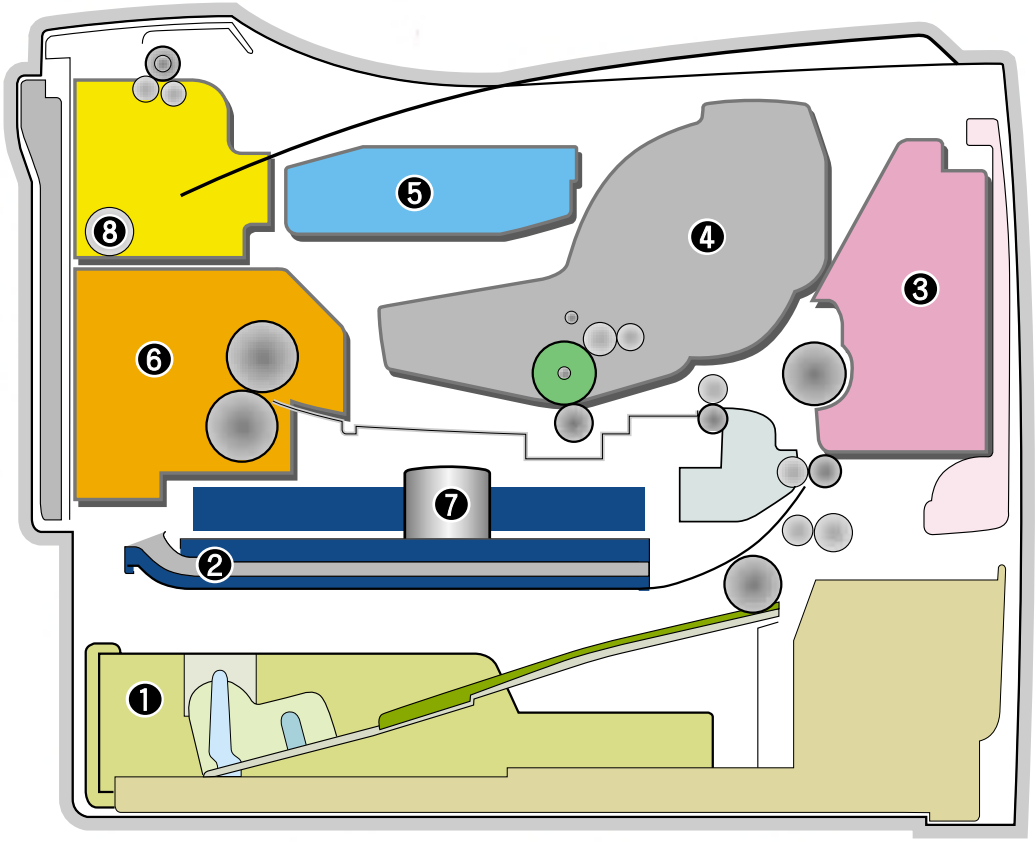
You can also use a network interface. ML-3561N comes with a built-in **network interface**,10/100 Base TX. ML-3561N also has a wireless network interface. But, you need to add the optional network interface card to ML-3560.

Printer Features

The table below lists a general overview of features supported by your printer.

Features	Printer Configuration		
	MI-3560	**ML-3561N**	**ML-3561ND**
Maximum Print Speed Monochrome	35	35	35
Memory (Standard) Up to 286 Mbytes Optional	32 Mbytes	32 Mbytes	64 Mbytes
PostScript and PCL Fonts	Yes	Yes	Yes
Default Resolutions (dpi)	600 x 600 dpi	600 x 600 dpi	600 x 600 dpi
500-Sheet Feeder	Optional	Optional	Optional
Network Interface	Optional	Standard	Standard
Automatic 2-Sided Printing (Duplex)	Optional	Optional	Standard
HDD	Optional	Optional	Optional
Wire Less N/W(802.11b)	Optional	Optional	Optional
Duplex Unit	Optional	Optional	Standard

4.2 System Layout



4.2.1 Feeding

It is consists of a basic cassette, an MP tray for supplying different types of media : envelope, label special paper, duplex unit, and parts related to paper transferring.

1) Separation method

Separate it from the friction pad mounted to the center of the cassette and apply retard roller that uses a spring clutch. A feed roller uses an electronic clutch to control driving power.

2) Basic cassette

It takes a center loading method and applies 'friction pad separating method.' It means that there is a paper sensor, but a paper size is detected after detecting the first paper by software.
Both the side guide and the rear guide can be adjusted for for various types of papers from A5 to legal size paper.
It has a paper existence sensing function (Capacity: 500 sheets of general paper) , paper arranging function, various size papers accepting function, SCF paper path function, and displaying function of paper remaining amount.
In the front side, there is a paper level indicator.

3) Pick-up roller

It has functions such as a paper pickup function, driving control function, paper feeding function, and removing electronic static function.

4) Retard roller

It takes an arrangement method which uses a stopper roller and a weight without electric actuator.
It has paper separating function, driving control function, and multi feeding prevention function.

6) Registration roller

It has a paper arranging function, paper transferring function, paper detecting function, jam removing function, and so on.

7) MP tray

It has a paper arranging function, paper transferring function, jam removing function, and so on.
It uses rubbing pad method to feed 100 sheets of general papers and 10 envelops.
It is possible to extend to 300mm for accepting a legal size paper.

8) Duplex unit

It has paper transferring function, paper guide function, jam removing function, paper sensing function, and main board supporting function.
It is designed for basic attachment, and the duplex feeding takes a side feeding method. Usable papers are A4, letter, and legal size paper.
For removing a jam occurred in a front part, it is designed to open a cassette and a guide.
It is designed to open a rear cover to remove a jam in a rear part.
If a face up tray is open, the duplex option cannot be used.

9) SCF (Second Cassette Feeder)

It is the same method with the main cassette, and the capacity is 500 sheets.
It has a separate driving mechanism. It is designed for a common use with a main cassette.

4.2.2 Transfer

It consists of a PTL (Pre-transfer Lamp) and a transfer roller. A PTL sheds light on an OPC drum, lowers an electric potential of an OPC drum's surface, and improves the efficiency of the transfer.
A transfer roller transfers toner on an OPC drum to the paper.
Life span: Print over 150,000 sheets (In 16~27℃)

4.2.3 Driver Ass'y

By driving the motor, the system takes power. It consists of a main motor for feeding fuser and duplex reverse turn, and a deve-motor for a toner cartridge.

- Main Motor : DC 24V , Rated RPM : 1380 rpm
- Deve Motor : DC 24V , Rated RPM : 1407 rpm

4.2.4 Fuser

It is consisted of a heat lamp, heat roller, pressure roller, thermistor and thermostat. It sticks the toner on a paper by heat and pressure to complete the printing job.

- E-coil Heator : 1,300 Watt ±50W

1) Thermostat

When a heat lamp is overheated, a Thermostat cuts off the main power to prevent over-heating.

- Non-Cotact type Thermostat

3) Heat roller

The heat roller transfers the heat from the e-coil to apply a heat on the paper. The surface of a heat roller is coated with Teflon, so toner does not stick to the surface.

4) Pressure roller

A pressure roller mounted under a heat roller is made of a silicon resin, and the surface also is coated with Teflon. When a paper passes between a heat roller and a pressure roller, toner adheres to the surface of a paper permanently.

5) Items for safety

Protecting device for overheating

- 1st protection device: Hardware cuts off when overheated
- 2nd protection device: Software cuts off when overheated
- 3rd protection device: Thermostat cuts off main power.

Safety device

- A fuser power is cut off when a front cover is opened
- Maintain a temperature of fuser cover's surface under 80(C for user, and attach a caution label at where customer can see easily when customer open a rear cover.

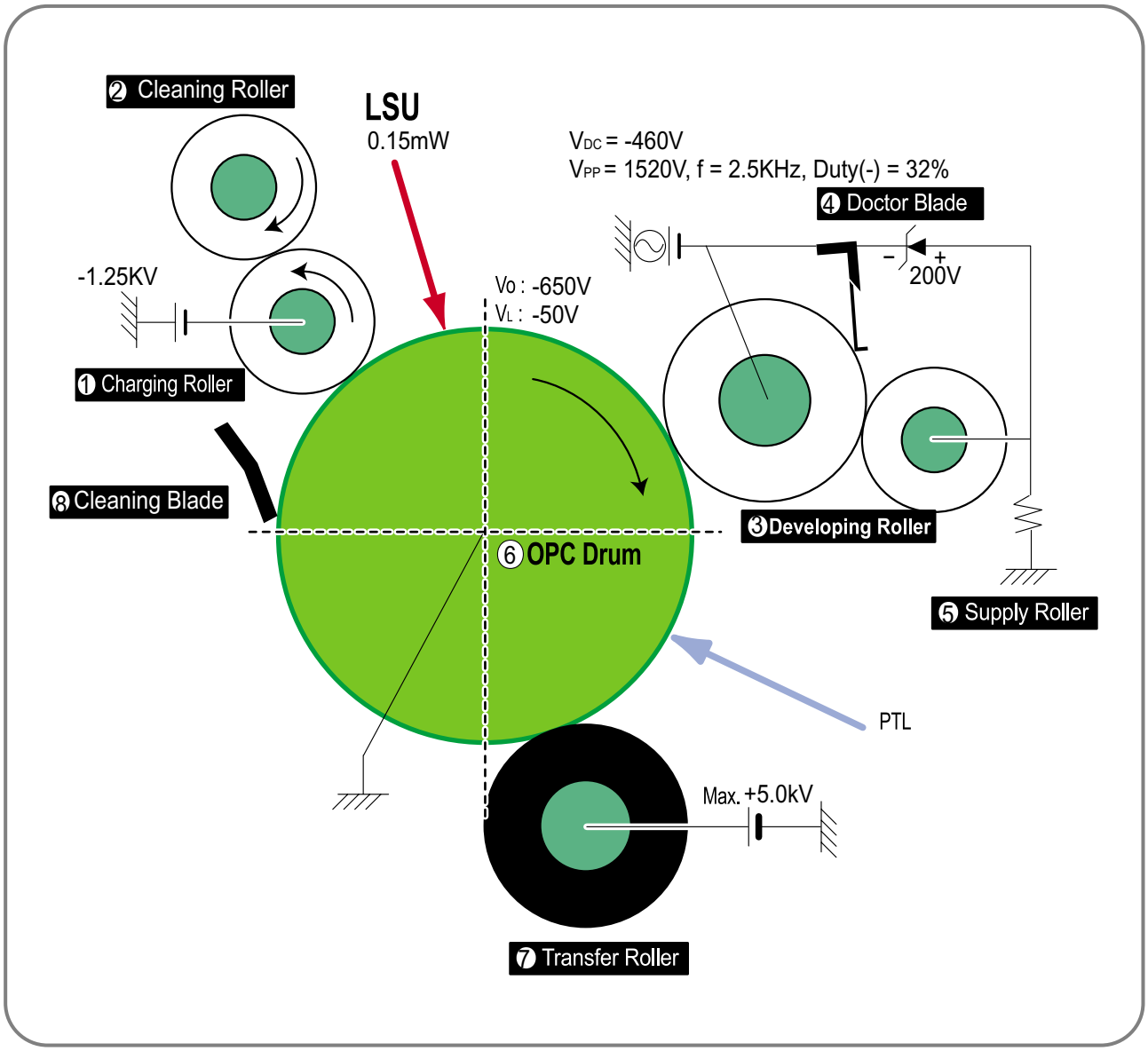
4.2.5 LSU (Laser Scanner Unit)

It is the core part of the LBP which switches from the video data received to the controller to the electro-static latent image on the OPC drum by controlling laser beam, exposing OPC drum, and turning principle of polygon mirror. The OPC drum is turned with the paper feeding speed. The /HSYNC signal is created when the laser beam from LSU reaches the end of the polygon mirror, and the signal is sent to the controller. The controller detects the /HSYNC signal to adjust the vertical line of the image on paper. In other words, after the /HSYNC signal is detected, the image data is sent to the LSU to adjust the left margin on

4.2.6 Print Cartridge

By using the electronic photo process, it creates a visual image. In the print cartridge, the OPC unit and the toner cartridge unit are in a body. The OPC unit has OPC drum and charging roller, and the toner cartridge unit has toner, supply roller, developing roller, and blade (Doctor blade)

- Developing Method: Non-contacting method
- Toner : Non magnetic 1 component pulverized type toner
- The life span of toner : 6,000 or 12,000 pages (LSA Pattern/A4 standard)
- Toner remaining amount detecting sensor : Yes
- OPC Cleaning : Cleaning blade type
- Management of disusable toner : Collect the toner by using Cleaning Blade
- OPC Drum protecting Shutter : Yes
- Classifying device for toner cartridge : ID is classified by interruption of the frame channel.

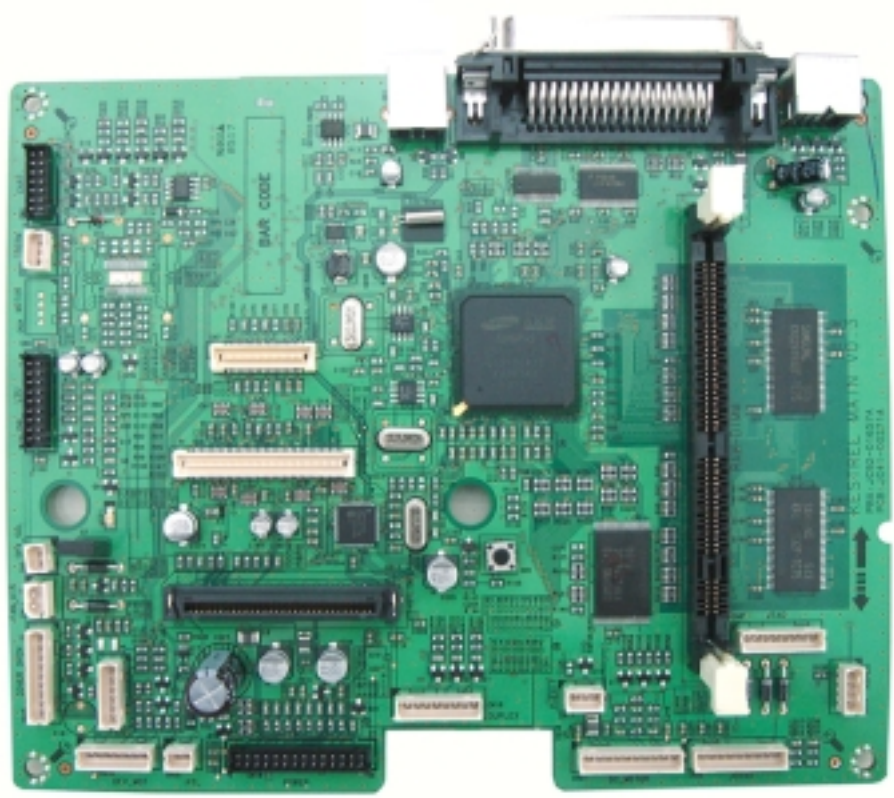


<Toner Cartridge Layout>

4.3 Engine H/W Specifications

4.3.1 ML-3560 (PCL) Main Board

The Engine Board and the Controller Board are in one united board.



4.3.1.1 Asic(SPGP V3)

- **RM1020E (I-Cache : 32KB, D-Cache-32KB)**
- **32-bit RISC embedded processor core**
- **Dual bus architecture for bus traffic distribution**
  - AMBA High performance Bus (AHB)
  - System Bus with SDRAM

- **SDRAMC**
  - 32 Bits Only, 100MHz
  - 5 Banks (Up to 128MB per Bank)

• **ROMC** - 4 Banks (Up to 16MB per Bank)

• **IOC** - 6 Banks (Up to 16MB per Bank)

• **DMAC** - 4 Channels

• **IEEE1284 compliant parallel port interface**

• **Printer Video Controller for LBP engines**

• **Graphic Execution Unit for Banding support of Printer Languages**

• **HCT / JBIG (Encoding / Decoding)**

• **Fully Hardware Rotator, Scaler and Halftoner support**

• **Printer Video Controller for LBP engines**
- PV C : Printer V ideo Controller without RET Algorithm
- HPV C : Printer V ideo Controller with RET algorithm(Line Memory & Lookup Table Memory : 512 x 8,4096 x 16) Dual / Single Beam, LV DS Pad (V DO, HSYNC)

• **PCI Controller**
- 32Bits, 33/66MHz
- PCI Local Bus Specification rev. 2.2 compliant
- Host /Agent Mode (Support 4 Devices in Host Mode)

• **NAND Flash Controller**
- 8/16 Bits, H/W ECC Generation
- Auto Boot Mode (using internal SRAM, 4KB)

• **Engine Controller**
- LSU Interface unit
- Step Motor : 2 Channels
- PWM : 8 Channels
- ADC : 6 Channels

• **USB 2.0 Interface**

• **Package :** 496pins PBGA

• **Power :** 1.2V (Core) , 3.3V (IO) power operation

• **Speed :** 400MHz core(ARM10) operation, 100MHz bus operation

4.3.1.2 Memory

• **Nand Flash Memory :** It stores System Program and downloads the System Program through PC Interface, and in case of model for export it compresses the PCL font, then stores it.

- Capacity : 32M byte

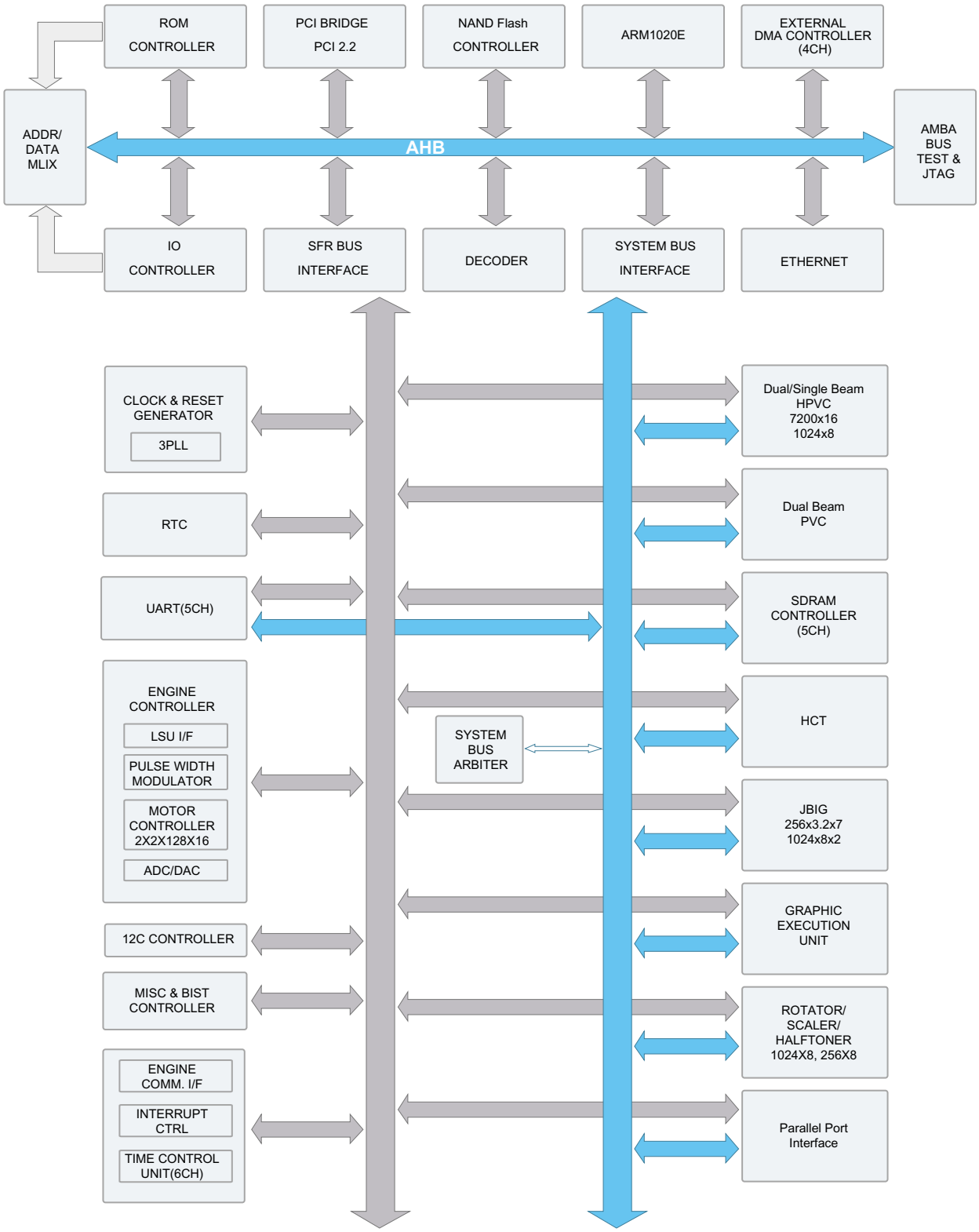
• **SDRAM :** It is used as Swath Buffer,System Working Memory Area,etc.when printing. It stores Font List,compressed into Flash memory,on DRAM and uses it as PCL font in case of model for export.

- Capacity : 32M Byte(Basic) ,up to 256Mbyte (User Option)
- Type : SDRAM 100MHz/133MHz ,16bit

4.3.1.3 Others

The Option PBA can be mounted for supporting the serial communication.

4.3.1.4. SPGP V3 Internal Block Diagram



4.3.1.5 Sensor Input Circuit

• Paper empty sensing

1. Cassette paper empty(Tray1)
   - 'Empty Sensor' detects whether the paper is in the Tray1.
2. MP paper empty(MP Tray)
   - 'MP empty sensor' detects whether the paper is in the MP Tray.

• When 'Auto' mode is Setting

If the 'MP Tray' and 'Tray' are all empty, 'Paper empty Tray1' messeage is displayed on the LCD panel.

• Feed sensing

The feed sensor detects that the entering paper from Tray1 or Tray2.
When 'Jam at top, open top cover' message is displayed on the LCD panel, the feed sensor should be checked.

• Paper exit sensing

The exit sensor detects that 'Jam at exit' error.
When the paper sticks into the exit part, 'Jam at Exit Open top cover' message is displayed on the LCD panel.

• Cover open sensing

The cover open switch is on the top frame, it dectects whether top cover is open or closed. When top cover is open, 'Close Open' message is diplayed on the LCD panel.

• Motor driving

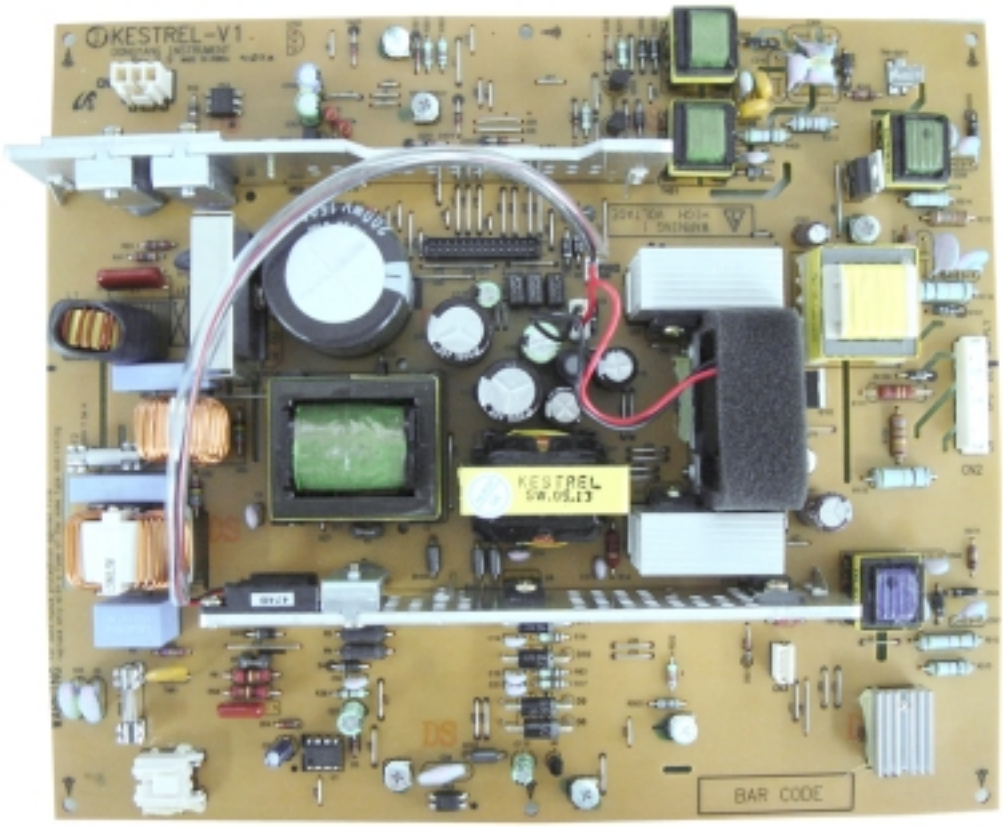
There are two BLDC motors. The one is for developer driving and the other is for other driving part operating.

• Output tray sensor

The output tray sensor detects that the exit paper out for output tray.

4.3.2 SMPS & HVPS board

The SMPS supplies DC Power to the System. It takes 110V /220V and outputs the +3.3V , +5V +24V to supply the power to the main board. The HV PS board creates the high voltage.



4.3.2.1 HVPS (High Voltage Power Supply)

• Transfer High Voltage (THV+)

- Input V oltage : 24 V D± 15%
- Output V oltage : MAX +5.0KV± 5 %, (Duty V ariable)
- Input contrast of the V oltage stability degree : under± 5 %(fluctuating input 21.6V ~26.4V)
  Loading contrast : ± 5 %or less
- Output V oltage Rising Time : 100 ms Max
- Output V oltage Falling Time : 100 ms Max
- Fluctuating transfer voltage with environmental various : +600 V ~5 KV
- Environment Recognition Control Method : The THV -PWM ACTIV E is transfer active signal. It detects the resistance by recognizing the voltage value, F/B, while permits the environmental recognition voltage.
- Output V oltage Control Method : Transfer Output V oltage is outputted and controlled by changing Duty of THV PWM Signal.

• Charge Voltage (MHV)

- Input V oltage : 24 V D± 15%
- Output V oltage : -1.1KV ~ -1.6KV B C3%
- Output V oltage Rising Time : 50 ms Max
- Output V oltage Falling Time : 50 ms Max
- Output Loading range : 30 MΩ ~1000 MΩ
- Output Control Signal(MHV -PWM) : CPU is HV output when PWM is Low

• Cleaning Voltage (THV-)

- The (+) Transfer V oltage is not outputted because the THV PWM is controlled with high.
- The (-) Transfer V oltage is outputted because the THV -Enable Signal is controlled with low
- The output fluctuation range is big because there is no Feedback control.
- Output V oltage : -1.0KV± 15%(when cleaning, 200MΩ

• Developing Voltage (DEV)

<DC>

- Input V oltage : 24 V D± 15%
- Input contrast of the output stability degree : ± 3 % or less Loading contrast : ±3 % or less
- Output V oltage Rising Time : 50 ms Max
- Output V oltage Falling Time : 50 ms Max
- Output Loading range : 10MMΩ ~1000 MΩ
- Output Control Signal (DEV -PWM) : the CPU output is HV output when PWM is low.

<AC>

- Input V oltage : 18
- Output V oltage : PWM Control (V_{p-p}, V_{AC})
- Input Contrast : ± 3 %
- Output Control Signal : The CPU is HV Output when Dev V_{p-p}, DEV AC ph/M, On-Off is low.

• Supply

- Output V oltage : ZENER using, DEV
- Input contrast of the output stability degree : under ± 3 % Loading contrast : ± 3% or less
- Output V oltage Rising Time : 50 ms Max
- Output V oltage Falling Time : 50 ms Max
- Output Loading range : 10 MΩ ~1000 MΩ
- Output Control Signal (DEV -PWM) : the CPU is HV output when PWM is low.

4.3.2.2 SMPS (Switching Mode Power Supply)

t is the power source of entire system. SMPS has three output channels. Which are 3.3V , +5V and +24V .

• AC Input

- Input Rated V oltage : 220 ~ 240V AC / 110 ~ 127V AC
- Input V oltage fluctuating range : 198 ~ 254V AC / 99 ~ 135V AC
- Rated Frequency : 50/60 Hz
- Frequency Fluctuating range : 47 ~63 Hz

• Rated Output Power

NO	ITEM	CH1	CH2	CH3	CH4
1	CHANNEL NAME	+3.3V	+5V	+24.0V S	24.0V F
2	CONNECTOR PIN	CON 3 3.3V PIN:9,11,13 GND PIN:21	CON 3 5V PIN:15,17 GND PIN:19	CON 3 24V PIN:1,3,5 GND PIN:23,25,27	
3	Rated Output	3.3V ±5% (3.13~3.47V)	+5V ±5% (4.75~5.25V)	+24V −10%+15% (21.6~27.6V)	+24V −10%+15% (21.6~27.6V)
4	Max.Output Current	2.0A	1.0 A	3.8A	0.7A
5	Peak Loading Current	2.5 A	1.5 A	4.0 A	1.0A
6	RIPPLE NOISE V oltage	Under 100mV p-p	Under 150mV p-p	Under 500mV p-p	Under 500mV p-p
7	Maximum output	6.6W	4.0W	67.2W	16.8W
8	Peak output	6.6W	5.0W	91.2W	16.8W
9	Protection for loading shortage and overflowing current	Fuse Protection or Shut down (2.5~5.0A)	Rugulator short protection	Fuse Protection, Shut down (5.5~7.5A) , Drop(Trp -10%)	Short protection

• Power Consumption

NO	Item	System
1	Stand-By	AV G : 80 Wh
2	PRINTING	AV G : 600 Wh
3	Sleep-Mode	AV G : 12 Wh under (Basic model)

• Length of Power Cord :1830 ±50mm

• Power Switch :Use

• **Feature**

- Insulating Resistance :50㏁ or more (at DC 500V)
- Insulating revisiting pressure : Must be no problem within 1 min.(at 1500V ac, 10mA)
- Leaking Current : under 3.5mA
- Running Current : under 40A PEAK (AT 25℃, COLD START) under 60A PEAK (In other conditions)
- Rising Time : within 2Sec
- Falling Time : over 20ms
- Surge : Bi-wave 6kV 12ohm (Com)
  Bi-wave 3kV 2ohm (Nor)

• **Environment Condition**

- Operating temperature range :0℃~ 40℃
- Maintaining temperature range :-25℃~ 85℃
- Preserving Humidity Condition :30% ~ 90%RH
- Operating atmospheric pressure range : 1atm

4.3.2.3 Fuser control

• When the power voltage of the machine is too high or too low Fuser on is stopped to protect the fuser.

• When the AC is not applied to the fuser control circuit, the fuser does not work then 'Fuser low heat error' would be occured.

• When the temperature of the fuser is too high, 'Engine over heat' error occurs if the cooling operation is not sufficient.

4.3.3 Engine F/W

4.3.3.1.Control Algorithm

• Feeding

If feeding from a cassette, the drive of the pickup roller is controlled by controlling the solenoid. The on/off of the solenoid is controlled by controlling the general output port or the external output port. If feeding from a manual feeder, decide to insert the paper according to the operation of the manual sensor, and by driving the main motor, insert the paper in front of the feed sensor. While paper moves, occurrence of Jam is judged as below.

ITEM	Description
JAM 0	- After pick up, paper cannot be entered due to paper is not fed. - After pick up, paper entered but it cannot reach to the feed sensor in certain time due to slip, etc. - After pick up, if the feed sensor is not on, re-pick up. After re-picking up, if the feed sensor is not on after certain time, it is JAM 0. ** It is a status that the leading edge of the paper doesn't pass the feed sensor.* - Even though the paper reaches to the feed sensor, the feed sensor doesn't be ON. ** It is a status that the leading edge of the paper already passes the feed sensor*
JAM 1	- After the leading edge of the paper passes the feed sensor,the trailing edge of the paper cannot pass the feed sensor after a certain time.(The feed sensor cannot be OFF) - After the leading edge of the paper passes the feed sensor, the paper cannot reach the exit sensor after certain time.(The exit sensor cannot be ON) ** The paper exists between the feed sensor and he exit sensor*
JAM 2	- After the trailing edge of the paper passes the feed sensor, the paper cannot pass the exit sensor after certain time.
DUPLEX JAM 1	- After the trailing edge of the paper passes the exit sensor, the leading edge of the paper cannot reach the duplex sensor after certain time.
DUPLEX JAM2	- After the leading edge of the paper passes the duplex sensor, the leading edge of the paper cannot reach the feed sensor after certain time.

• Driver

By gearing,the main motor drives the rollers such as feeding roller, driven by deve-Motor, fuser roller, and exiting roller. The step motor is controlled for the such acceleration section and steady section. In the initial stage of the motor run, appoint the acceleration section to prevent the step-out of the motor. It is controlled by the A 3977 motor driver IC. The step signal and the enable signal are sent to make the phase for driving the motor in CPU.

• Transfer

The charging voltage,developing voltage and the transfer voltage are controlled by PWM (Pulse Width Modulation) . The each output voltage is changeable due to the PWM duty. The transfer voltage admitted when the paper passes the transfer roller is decided by environment recognition. The resistance value of the transfer roller is changed due to the surrounding environment or the environment of the set, and the voltage value, which changes due to the environments, is changed through AD converter. The voltage value for impressing to the transfer roller is decided by the changed value.

• **Fusing**

The temperature change of the heat roller's surface is changed to the resistance value through the thermistor. By converting the voltage value, which impressed to the resistance, to the digital value through the AD converter, the temperature is decided. The AC power is controller by comparing the target temperature to the value from the thermistor. If the value from the thermistor is out of controlling range while controlling the fusing,the error stated in the below table occurs.

• **Lamp Method**

Error	Description	LCD Display
Open Heat Error	When warming up, it has been lower than 60 over 35 seconds	Engine Fuser Error
Low heat Error	- Standby It has been lower than 130℃ over 10 seconds - Printing Up to 2 consecutive pages : It has been lower than 155 over 7 seconds. From 3 consecutive pages : It has been 25℃ lower than the fixed fusing temperature over 7 seconds.	Engine Low Heat Error
Over Heat Error	It has been higher than 230℃ over 10 seconds	Engine Over Heat Error

=>This can be changed in the future.

• **LSU**

The LSU is consisted of the LD (Laser Diode) and the polygon motor control. When the printing signal occurs, it turns on the LD and drives the polygon motor. When the detector detects the beam, Hsync occurs. When the polygon motor speed becomes strady, Lready occurs. If two conditions are satisfied, the status are not satisfied, the error shown in below occurs.

Error Type	Description	LCD Display
Polygon Motor Error	Whenthe polygon motor speed doesn't become steady	LSU not Ready
Hsync Error	The polygon motor speed is steady but the Hsync is not generated	HSYNC Erorr

Memo

5. Disassembly and Reassembly

5.1 General Precautions on Disassembly

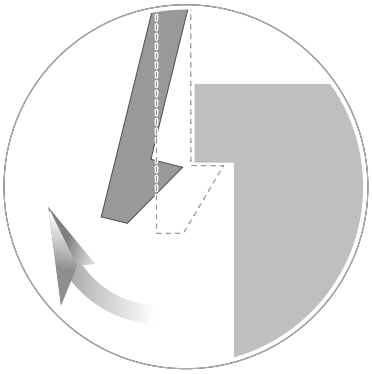
When you disassemble and reassemble components, you must use extreme caution. The close proximity of cables to moving parts makes proper routing a must.
If components are removed, any cables disturbed by the procedure must be restored as close as possible to their original positions. Before removing any component from the machine, note the cable routing that will be affected.

Whenever servicing the machine, you must perform as follows:

1. Check to verify that documents are not stored in memory.
2. Be sure to remove the print cartridge before you disassemble parts.
3. Unplug the power cord.
4. Use a flat and clean surface.
5. Replace only with authorized components.
6. Do not force plastic-material components.
7. Make sure all components are in their proper position.

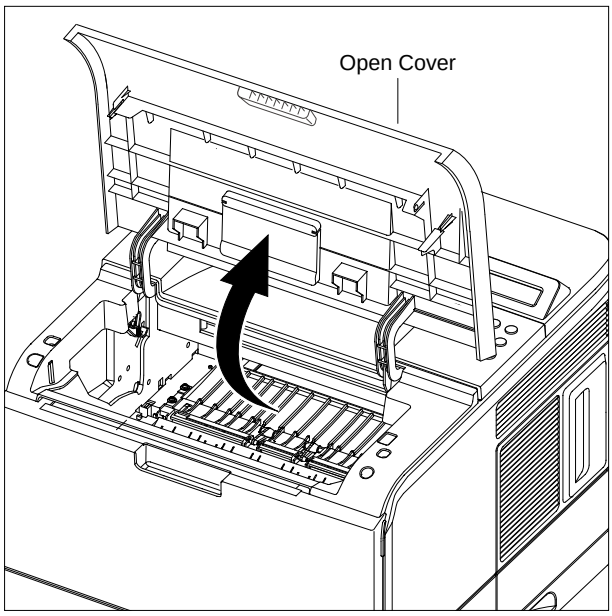
Releasing Plastic Latches

Many of the parts are held in place with plastic latches. The latches break easily; release them carefully.
To remove such parts, press the hook end of the latch away from the part to which it is latched.

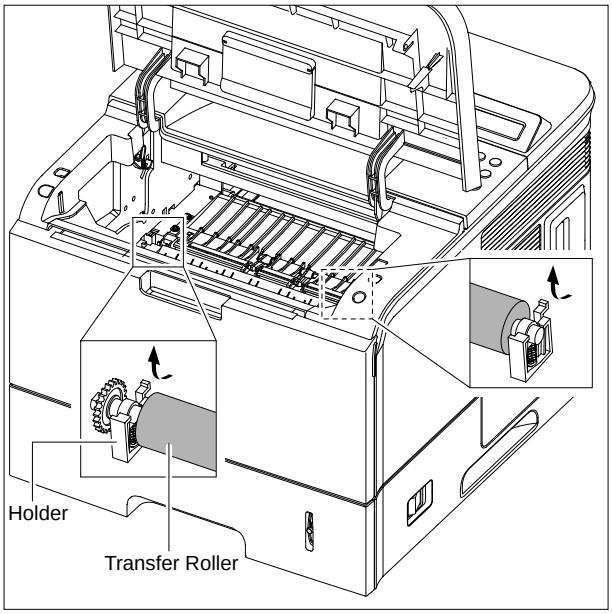


5.2 Transfer Roller

1. Open the Open Cover.

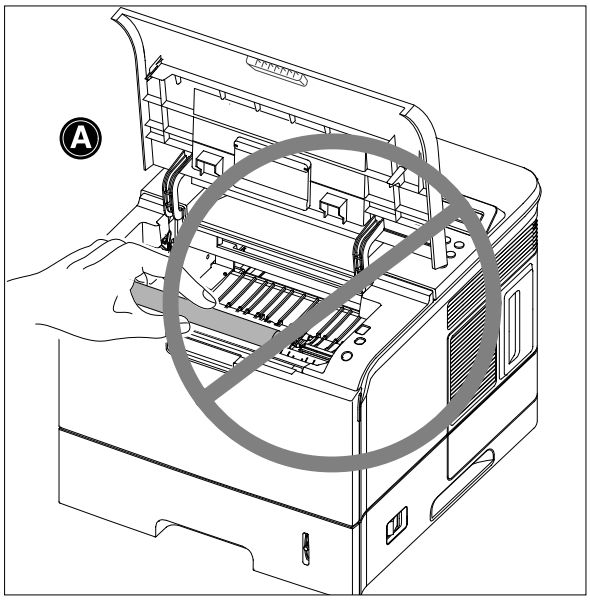


2. Hold the lever at both ends of the roller, then remove the roller.

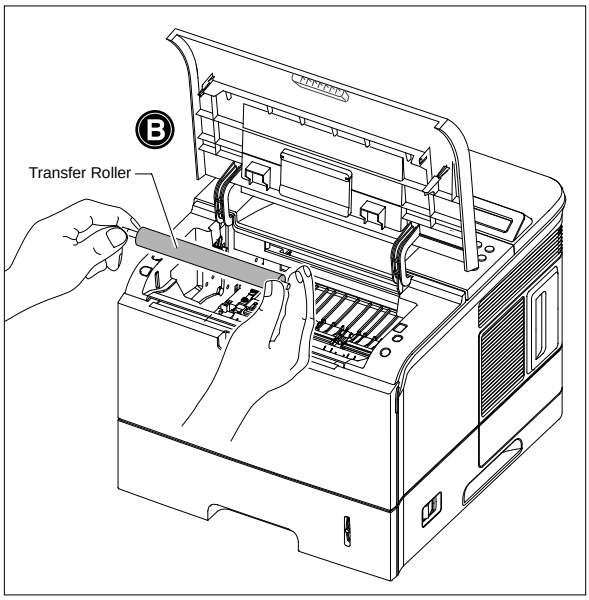


<Cautions When Replacing a Transfer Roller>

* Do not grab the Transfer Roller shown in picture (A).
  It may cause a malfunction due to a foreign object.
* Hold the both side of the Transfer Roller shown in picture (B) when replacing it.



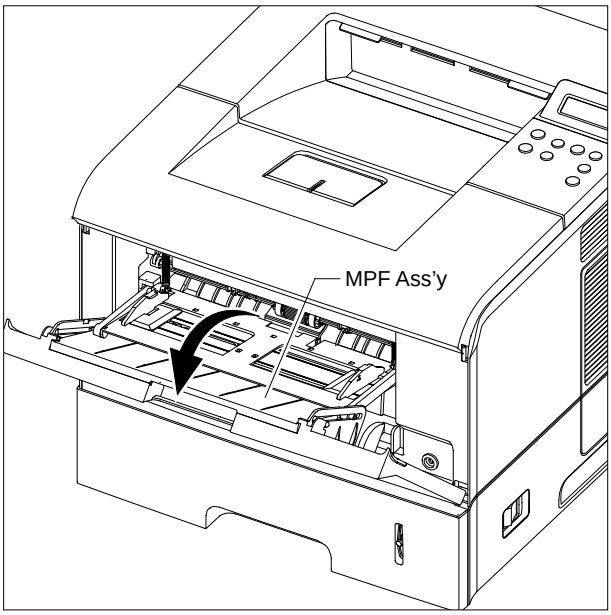
(A)



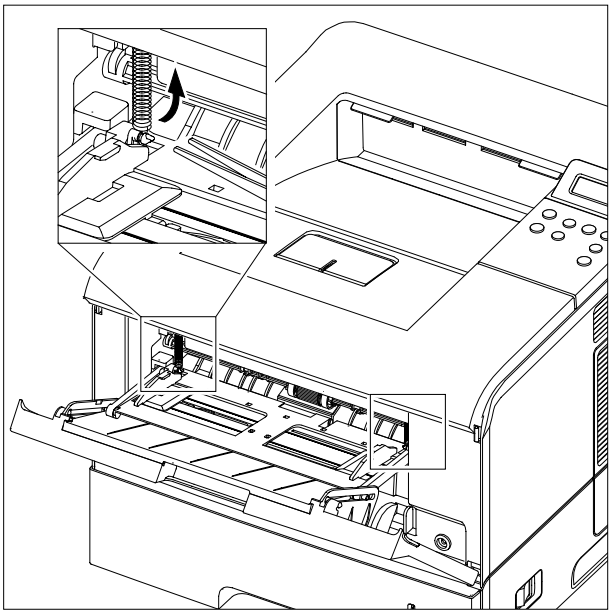
(B)

5.3 MPF Ass'y

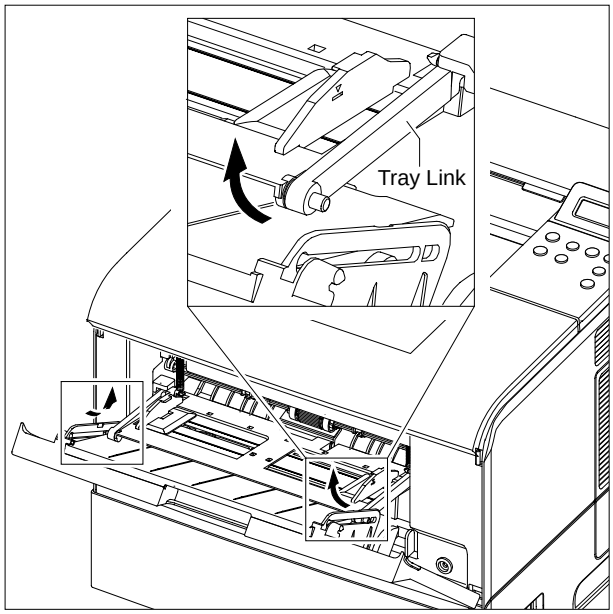
1. Open the MPF Ass'y.



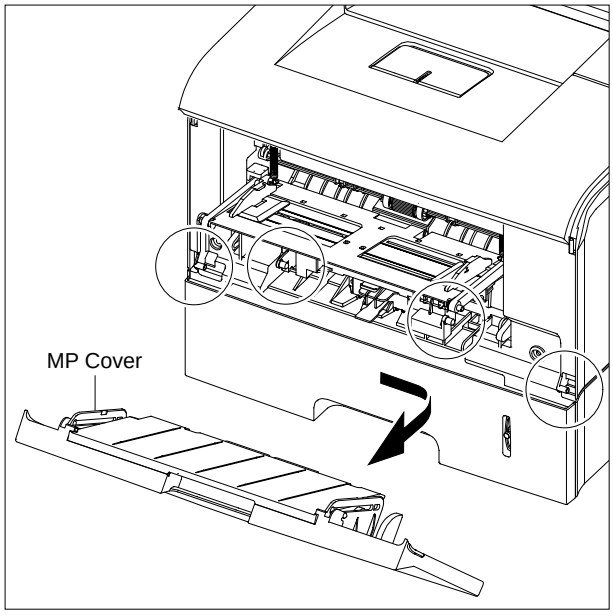
2. Remove two springs from the Knock Up Plate Ass'y.



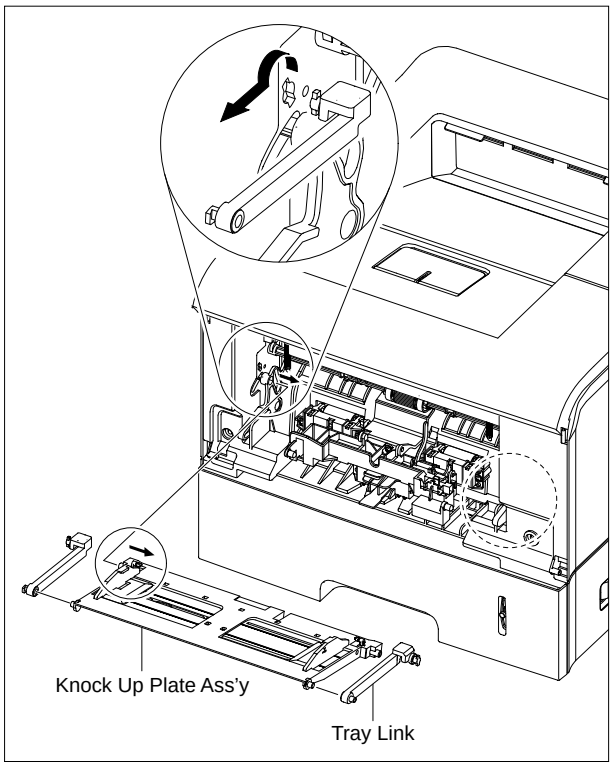
3. Remove the Tray Link from the MP Cover.



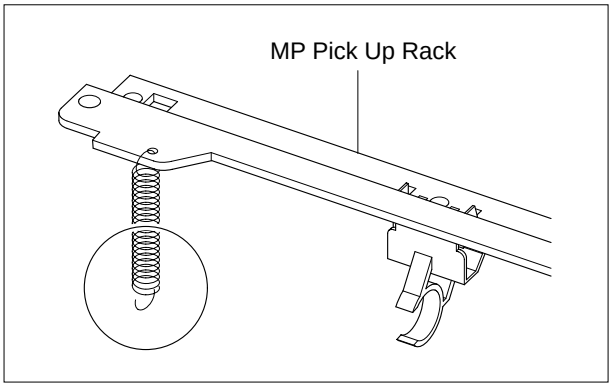
4. Push the MP Cover and remove it, as shown below.



5. Remove MP Cover in the direction of arrow, as shown below.



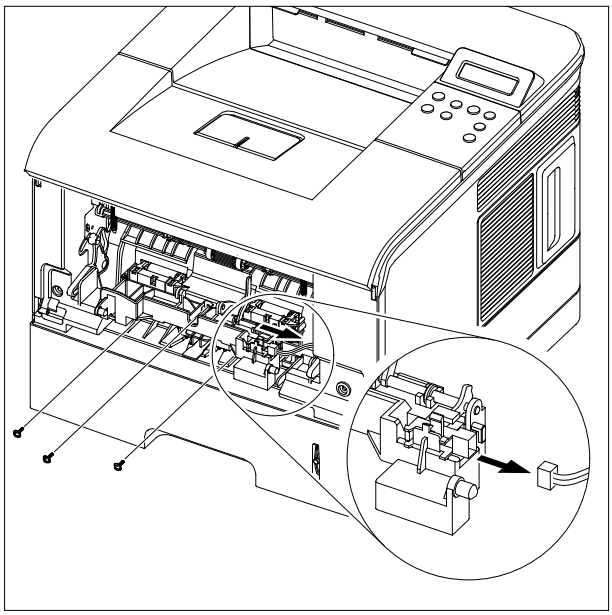
*** NOTICE :** *Do not separate the spring from the MP Pick Up Rack for convenience of assembling. Locate the hook section of the spring that is connected to the Knock Up Plate Ass'y as shown in the outside for convenience of assembling.*



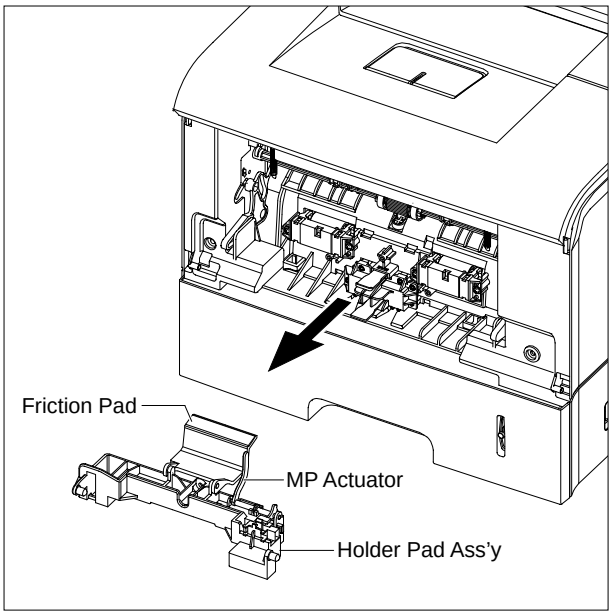
5.4 Holder Pad Ass'y

1. Before you remove the Holder Pad Ass'y, you should remove : -MPFAss'y (Refer to the5.3)

2. Unplug the connector and remove the three screws, as shown below.

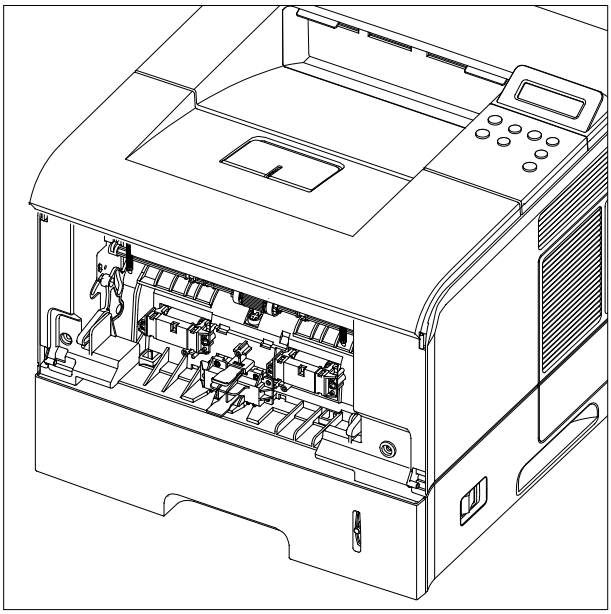


3. Remove the Photo Interrupter and the MP Actuator, as shown below.

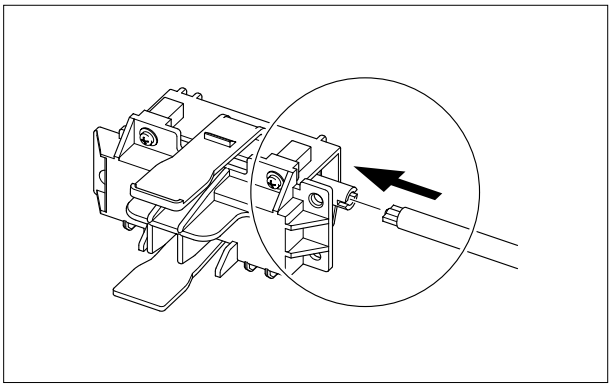


5.5 Retard Ass'y

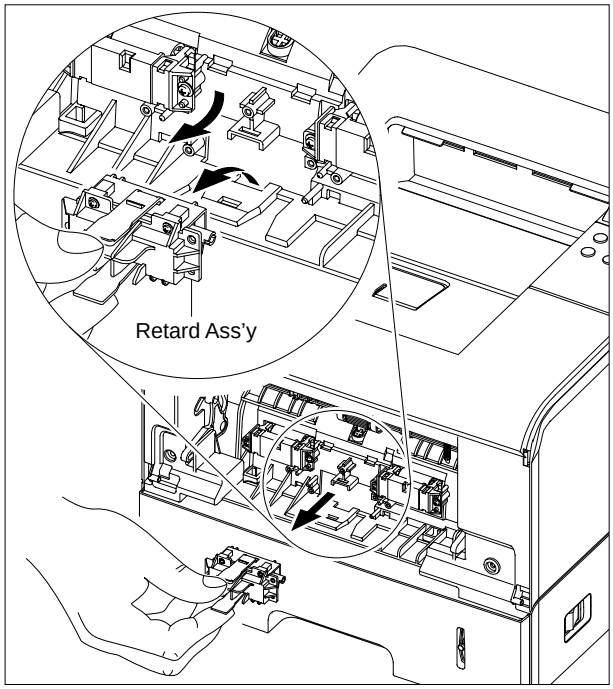
1. Remove the Roller Ass'y, as shown below.



***NOTICE :** When you reassemble the Retard Roller Ass'y Make sure that the let and of the Retard Roller fits into the Retard Shaft.*



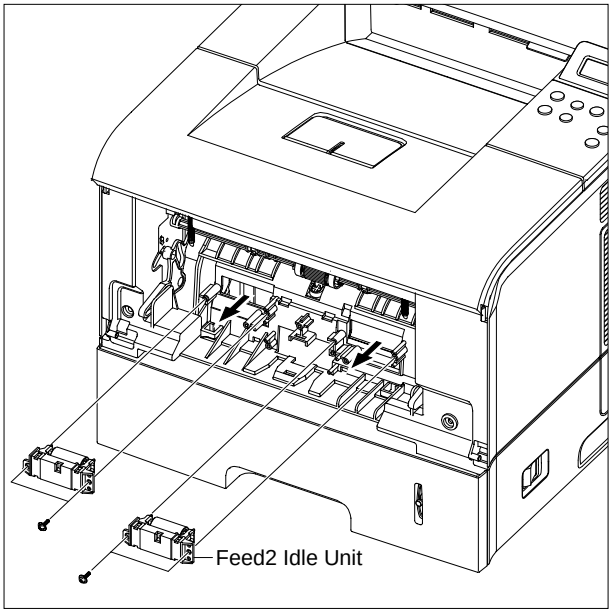
2. Releasse the lock as shown below and take out the retard Ass'y.



5.6 Feed2 Idle Unit

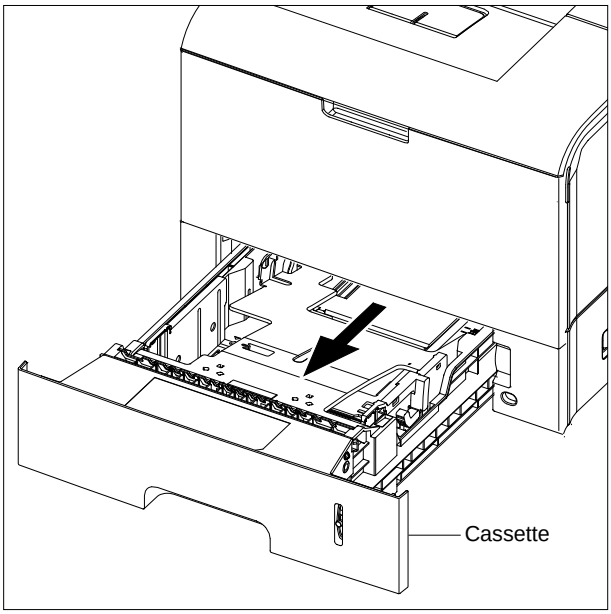
1. Before you remove the Feed2 Idle Unit, you should remove :
   - Holder Pad Ass'y (Refer to the 5.4)

2. Remove four screws. Then lift the Idle Unit, as shown below.

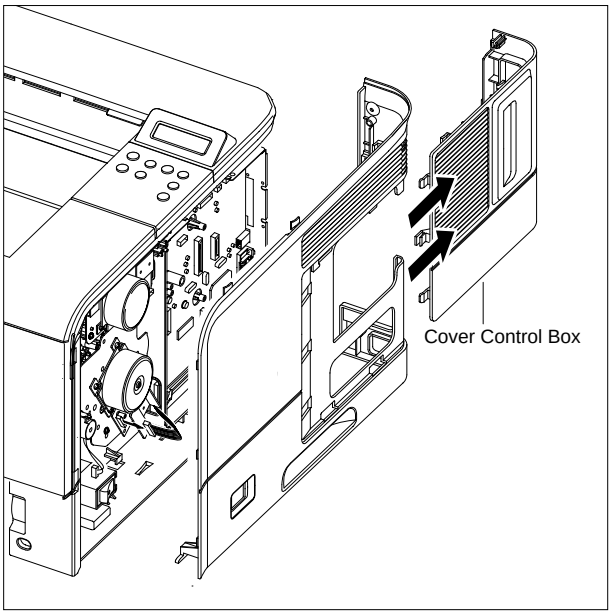


5.7 Cover Right

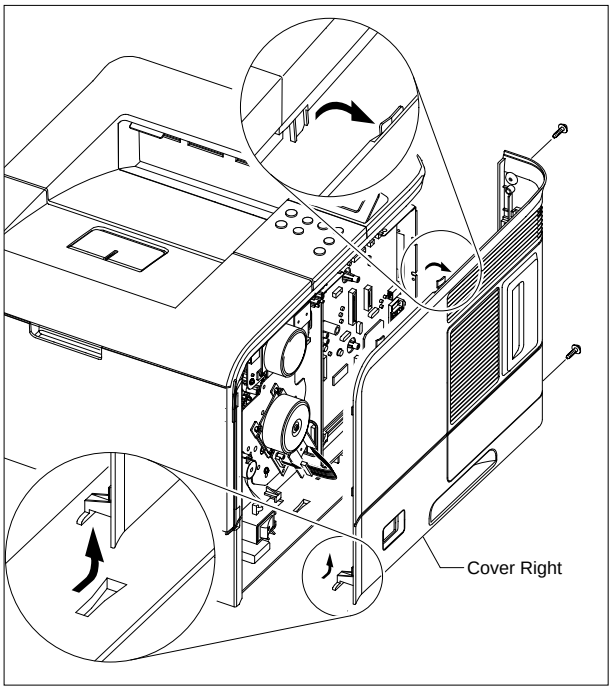
1. Pull the Cassette out of the printer.



2. Remove the Cover Dummy and Cover Control Box.



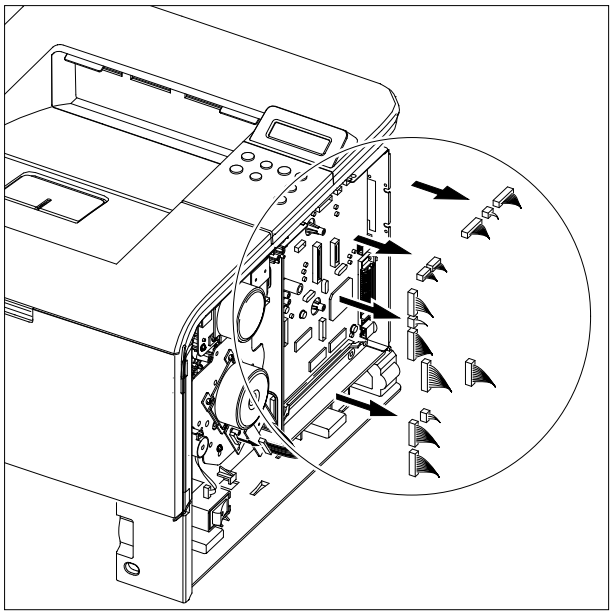
3. Remove two screws and take out the right side, as shown below.



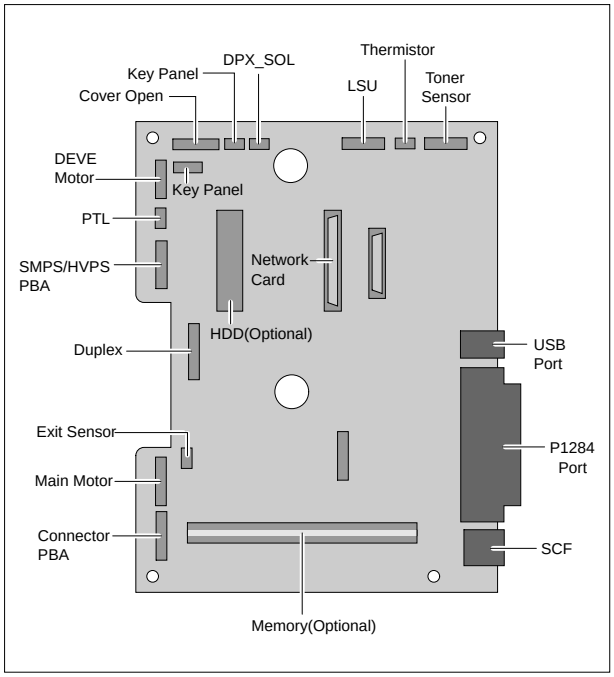
5.8 Main PBA

1. Before you remove the Main PBA, you should remove: - Cover Right (Refer to the 5.7)

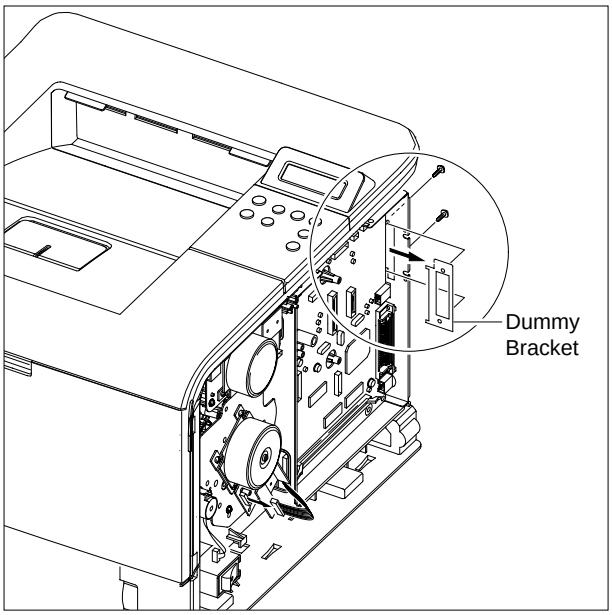
2. Unplug the all Connectors, as shown below.



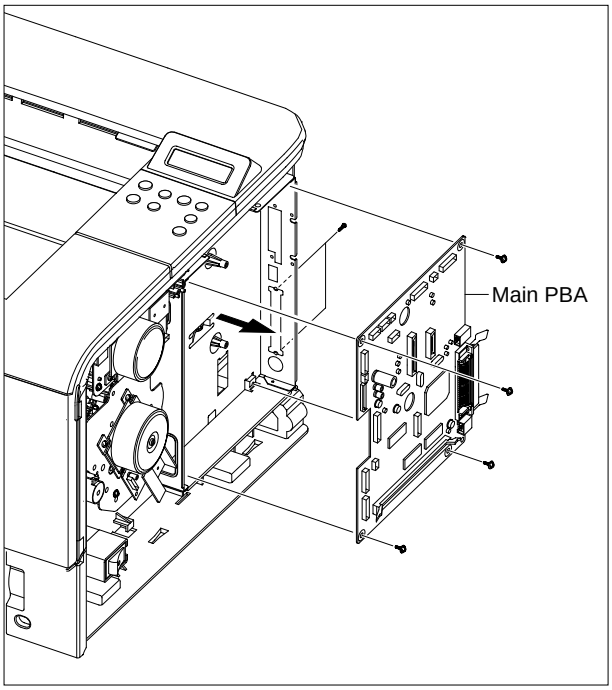
3. The Connectors are located, as shown below.



4. Remove two screws and take out the Dummy Bracket.



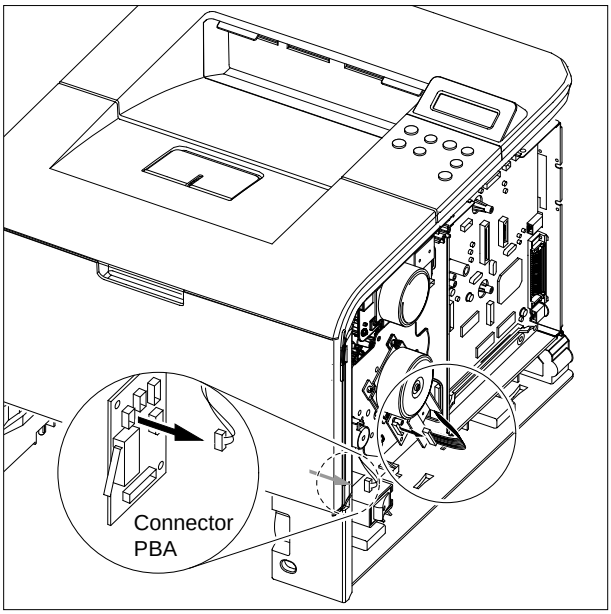
5. Remove six screws and take out the Main PBA.



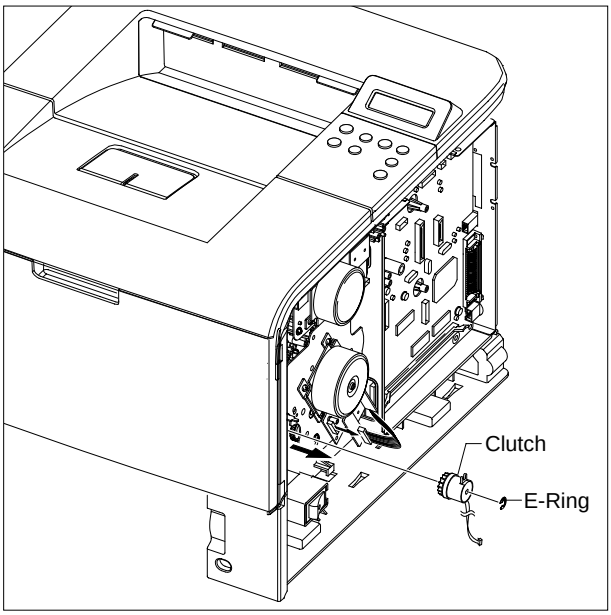
5.9 Main Drive Ass'y

1. Before you remove the Main Drive Ass'y, you should remove : - Cover Right (Refer to the 5.7)

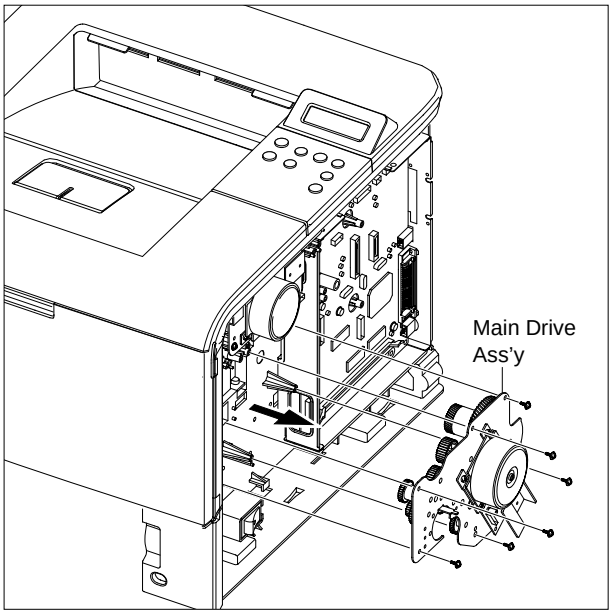
2. Unplug the two Connectors from the Main Motor Ass'y and the Connector PBA.



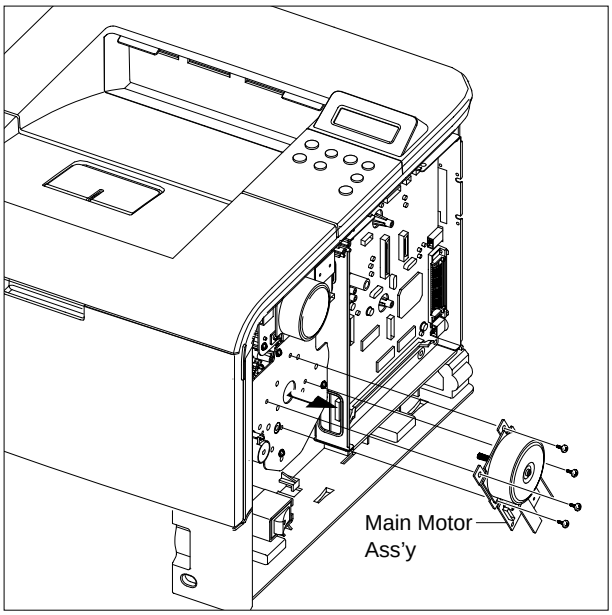
3. Remove the E-ring and take out the Clutch.



4. Remove six screws and take out the Main Drive Ass'y.



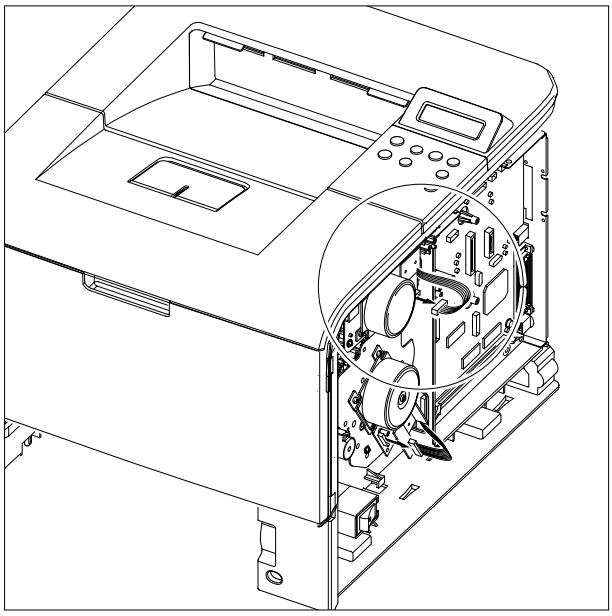
5. When separating the Main Motor Ass'y, disconnect the Connector from the Main Motor Ass'y, remove four screws, and then remove the Main Motor Ass'y.



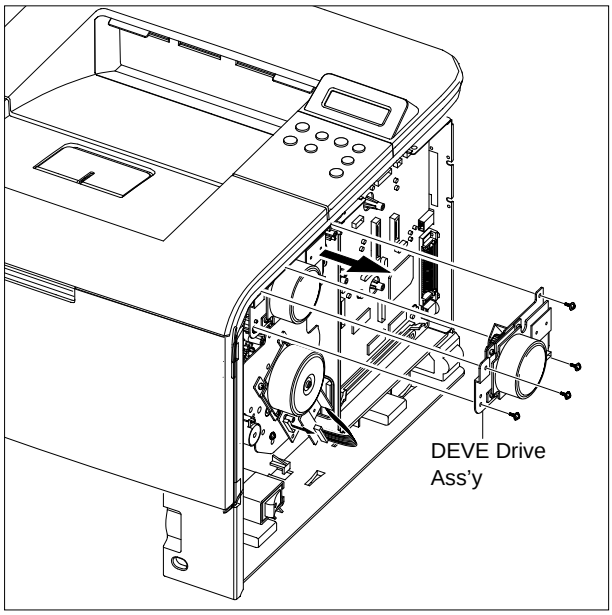
5.10 DEVE Drive Ass'y

1. Before you remove the DEVE Drive Ass'y, you should remove : - Cover Right (Refer to the 5.7)

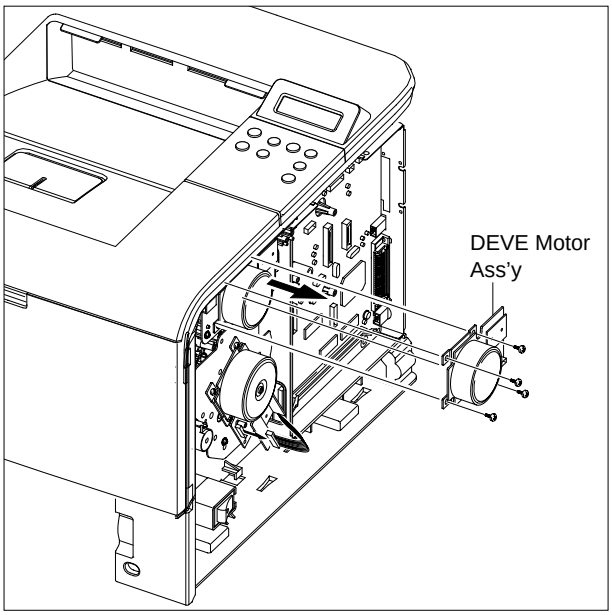
2. Unplug the Connector from the DEVE Motor Ass'y.



3. Remove four screws and take out the DEVE Drive Ass'y.



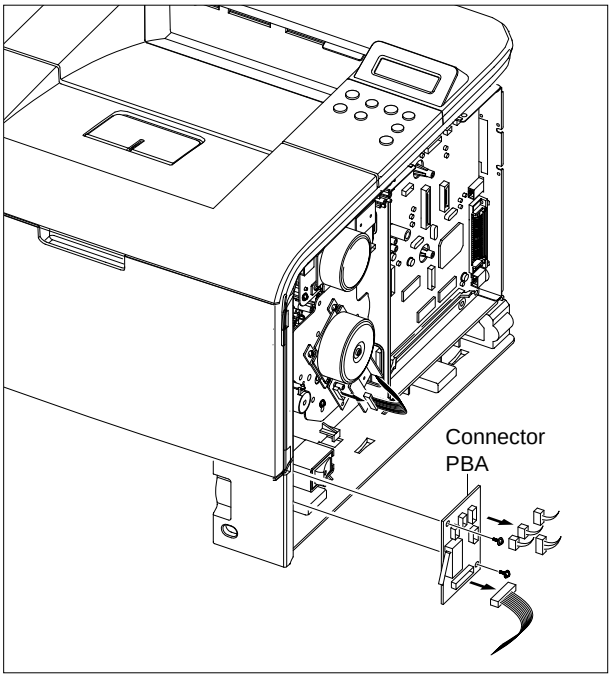
4. When separating the DEVE Motor Ass'y, disconnect the Connector from the DEVE Motor Ass'y, remove four screws, and then remove the DEVE Motor Ass'y.



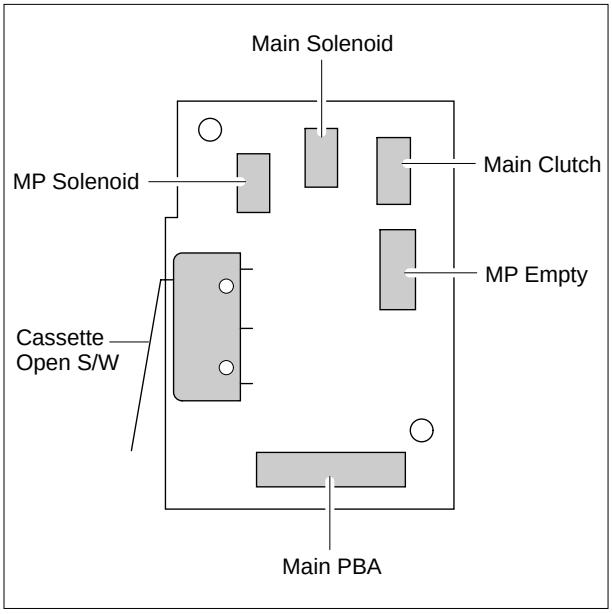
5.11 Connector PBA

1. Before you remove the Connector PBA, you should remove : - Cover Right (Refer to the 5.7)

2. Unplug the all Connectors from the Connector PBA and take it out.



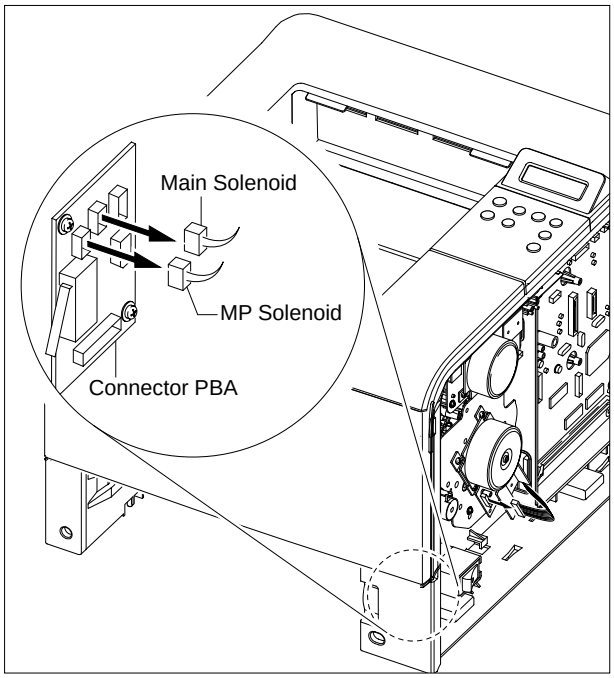
3. The Connectors are located, as shown below.



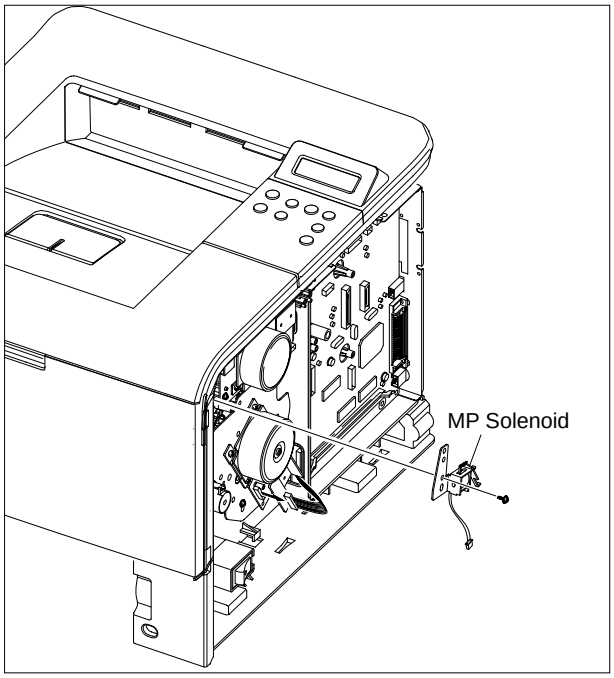
5.12 Solenoid

1. Before you remove the Solenoid, you should remove:
   - Cover Right (Refer to the 5.7)
   - Main Drive Ass'y (Refer to the 5.9)

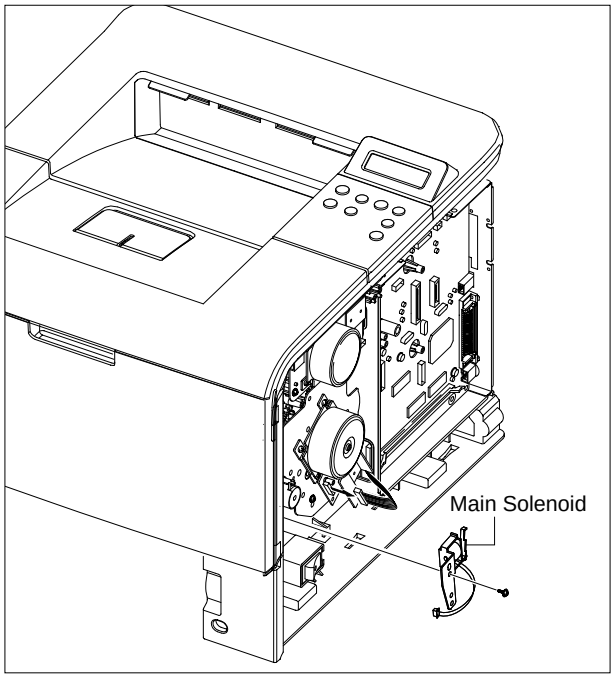
2. Unplug the MP Solenoid Harness and the Main Solenoid Harness from the Connector PBA.



3. Remove one screws and take out the MP Solenoid.



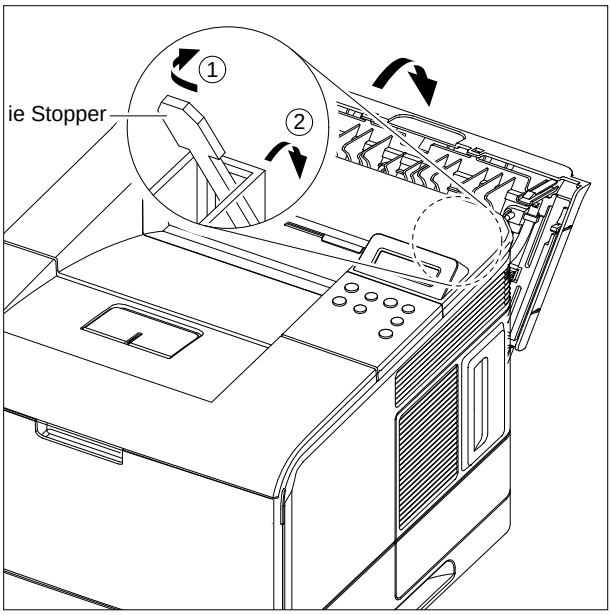
4. Remove one screws and take out the Main Solenoid.



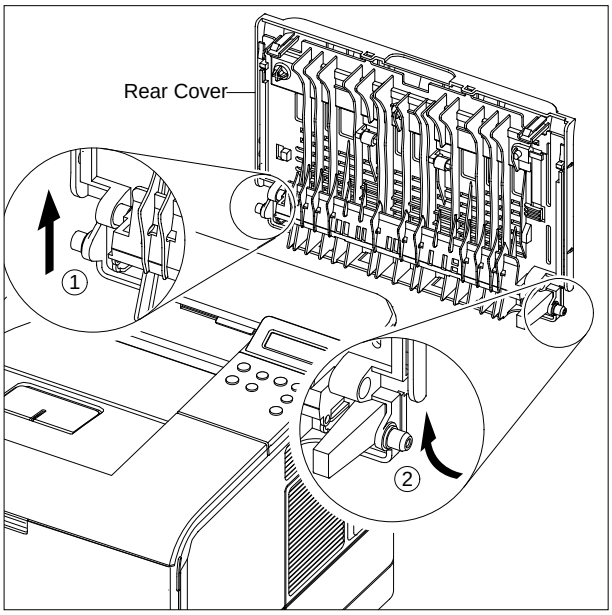
***NOTICE :** It is not necessary to disassemble the Main Drive Ass'y to remove the MP Solenoid.*

5.13 Rear Cover

1. Open the Rear Cover, and then take out the Stopper.

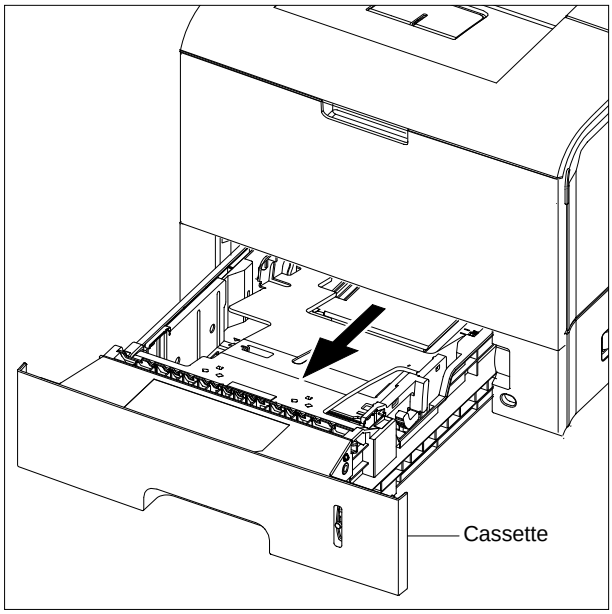


2. Remove the Rear Cover in the direction of arrow

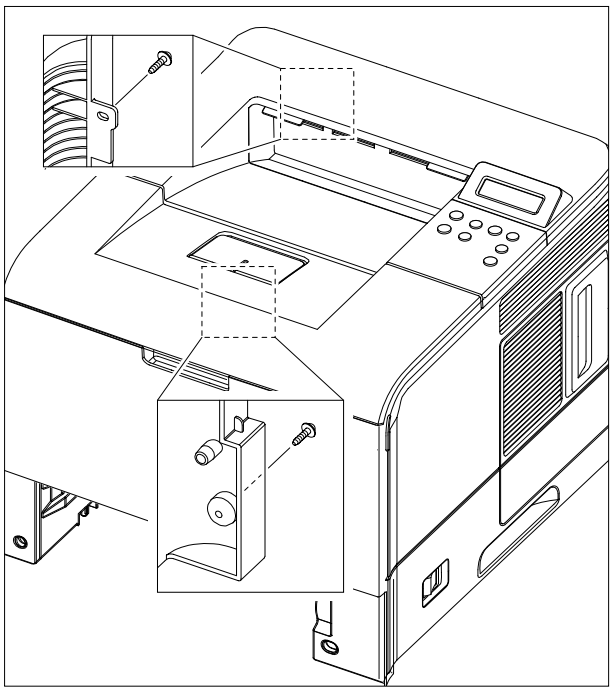


5.14 Cover Left

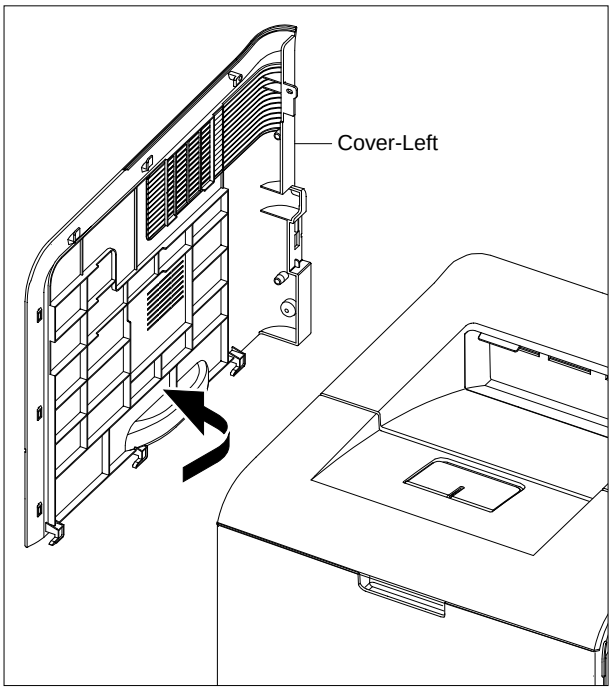
1. Pull the Cassette out of the printer.



2. Remove two screws and take out the left side.



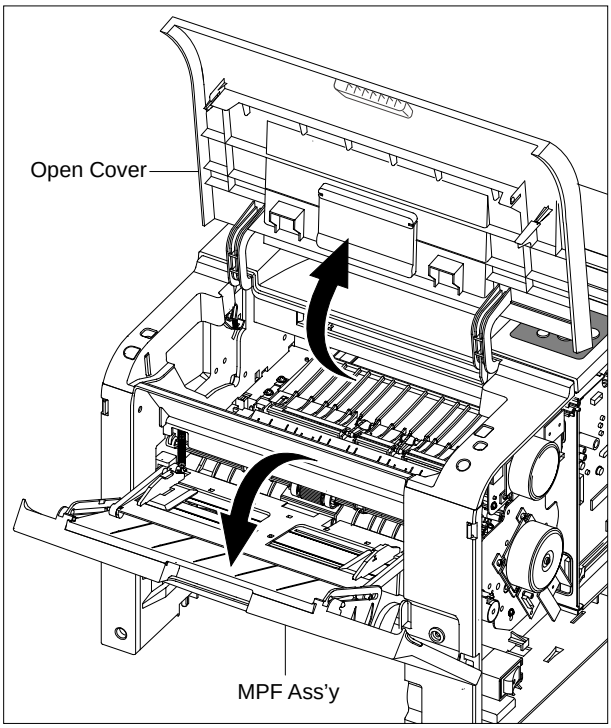
3. Take out the Cover Left.



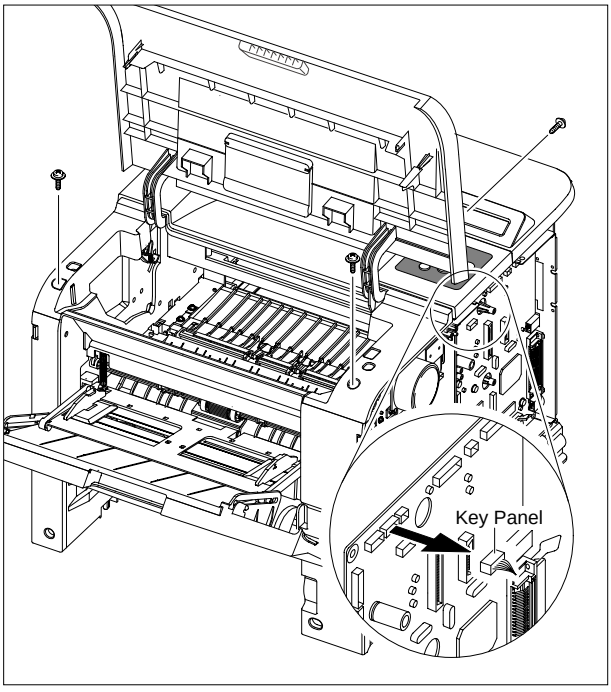
5.15 Top Cover

1. Before you remove the Top Cover, you should remove:
   - Rear Cover (Refer to the 5.14)
   - Cover Right (Refer to the 5.7)
   - Cover Left (Refer to the 5.13)

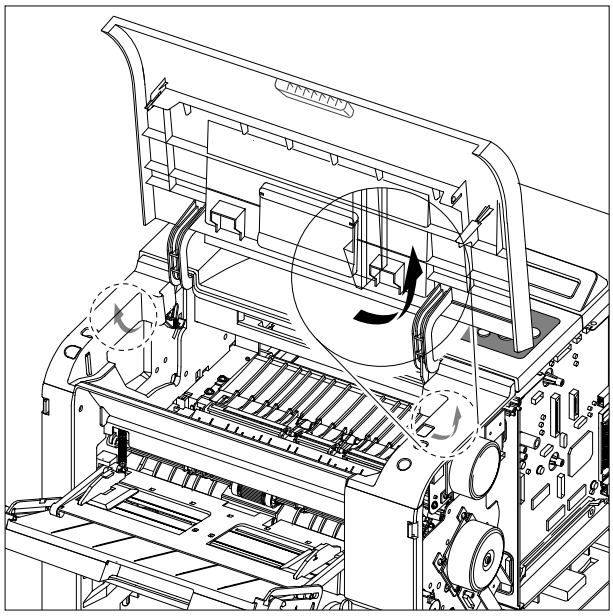
2. Open the MPF Ass'y, the Rear Cover, the Open Cover.



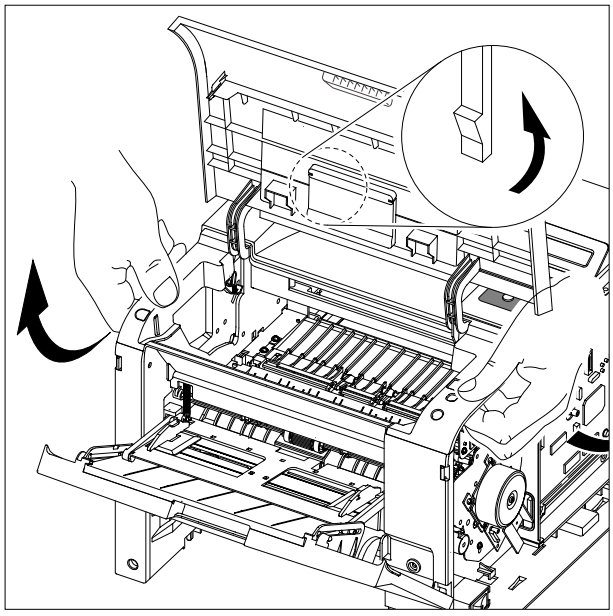
3. Unplug the two Connectors after you remove the three screws from the Main PBA.



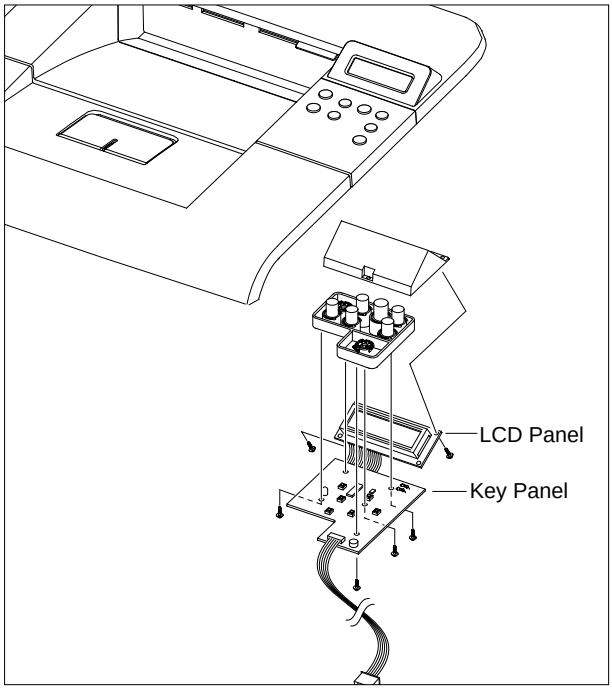
4. Unlatch both ends of the Top Cover.



5. Unlatch the hook and take out the Top Cover.



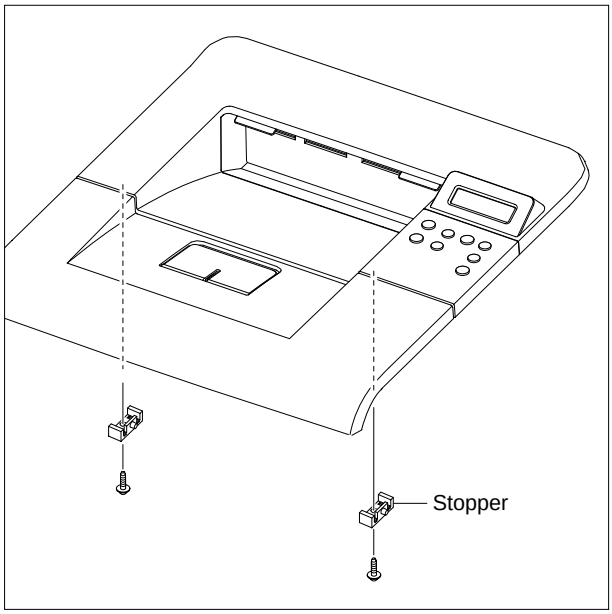
6. Remove six screws and then take out the LCD Panel and the Key Panel.



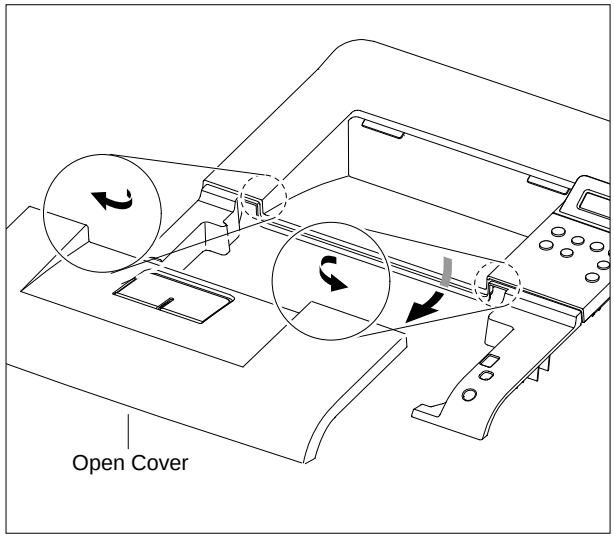
5.16 Open Cover

1. Before you remove the Open Cover, you should remove:
   - Top Cover (Refer to the 5.15)

2. Remove two screws and take out the Stopper.



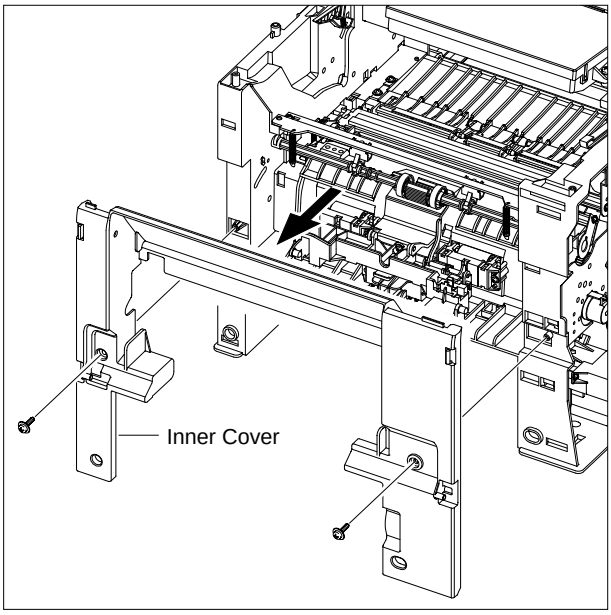
3. Take out the Open Cover, as shown below.



5.17 Inner Cover

1. Before you remove the Inner Cover, you should remove:
   -MPFAss'y (Refer to the5.3)
   - Top Cover (Refer to the 5.15)

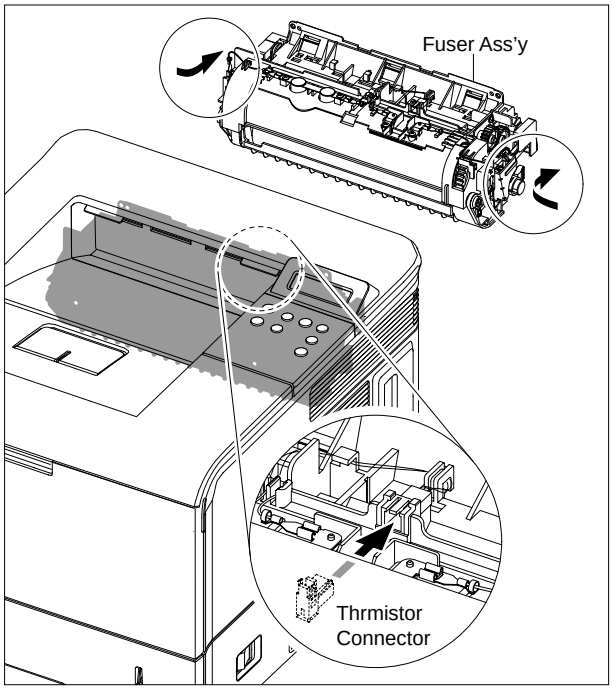
2. Remove two screws and take out the Inner Cover.



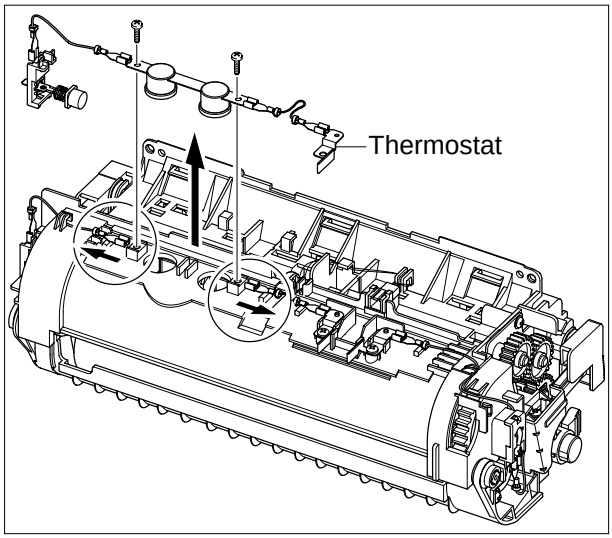
5.18 Fuser Ass'y

1. Before you remove the Fuser Ass'y, you should remove:
   - Rear Cover (Refer to the 5.14)

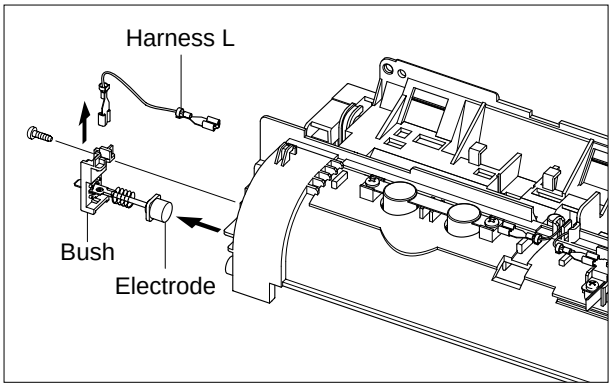
2. Pull the Locking Lever. Then take out the Fuser Ass'y, as shown below.

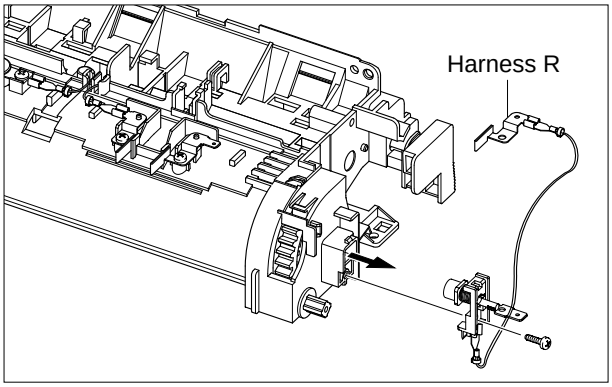


3. Remove two screws and take the Thermostat out of the Fuser Ass'y.

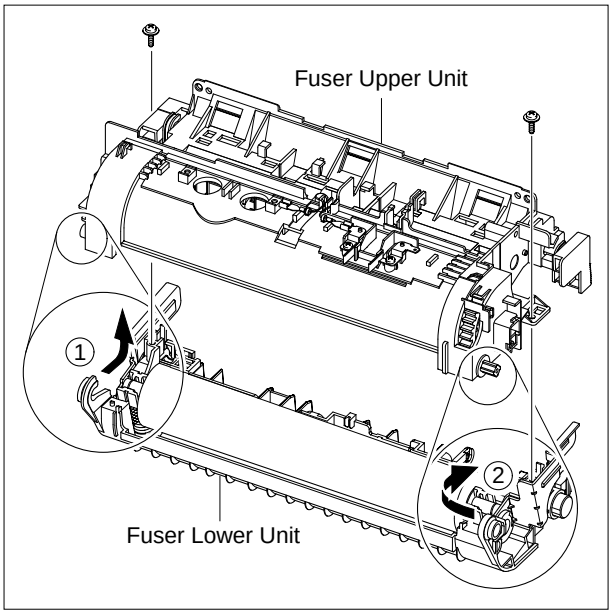


4. Remove two screws securing the Electrode L, R and remove it, as shown below.

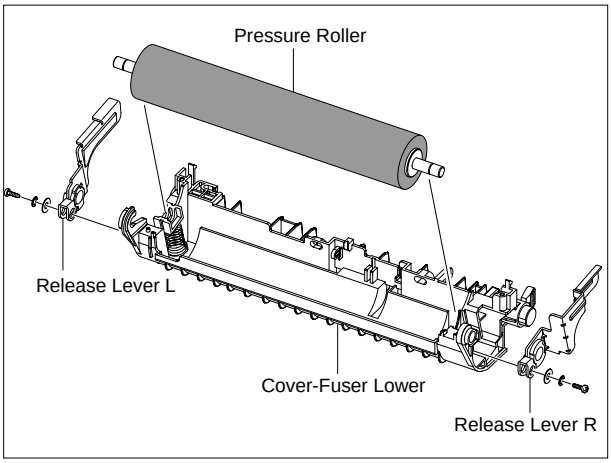




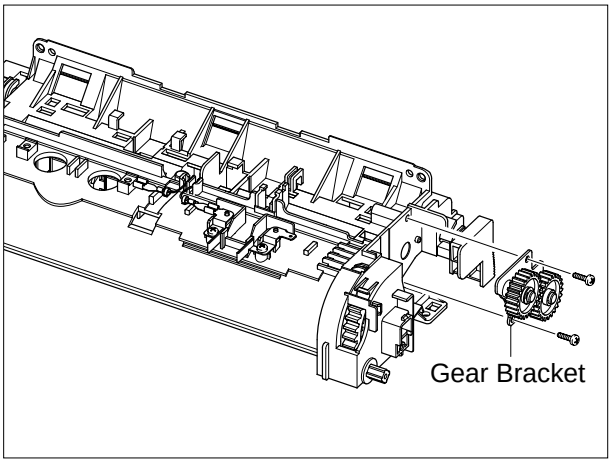
5. Remove two screws securing the Fuser Upper Unit and remove it, as shown below.



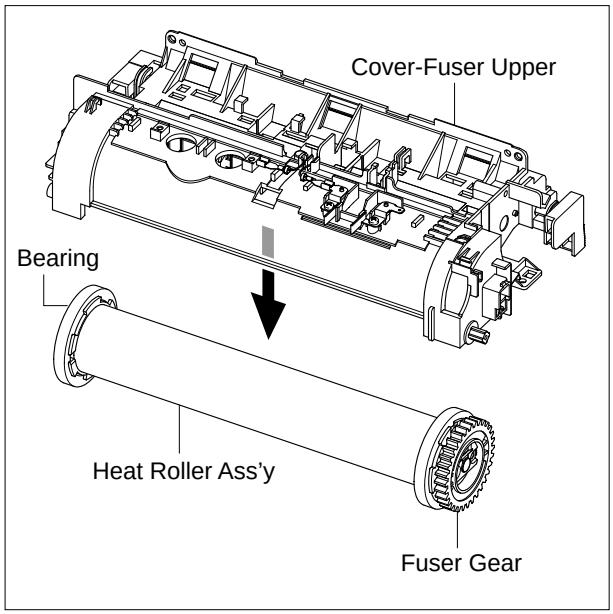
6. Remove two screws securing the Release Lever L,R and remove it, as shown below.



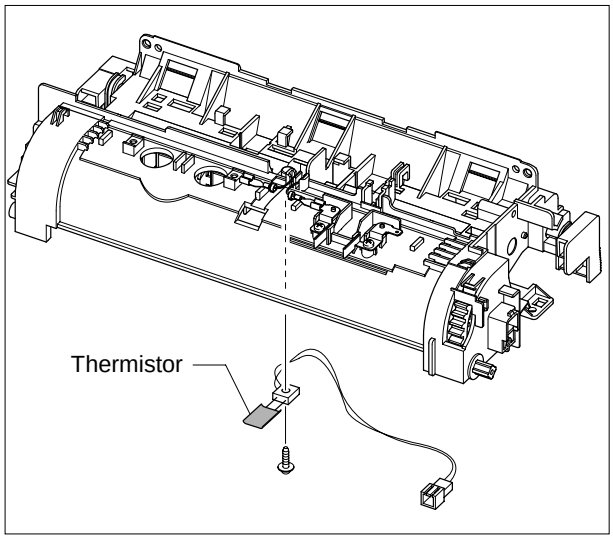
7. Remove two screws and take out the Gear Bracket.



8. Take out the Heat Roller Ass'y, as shown below.



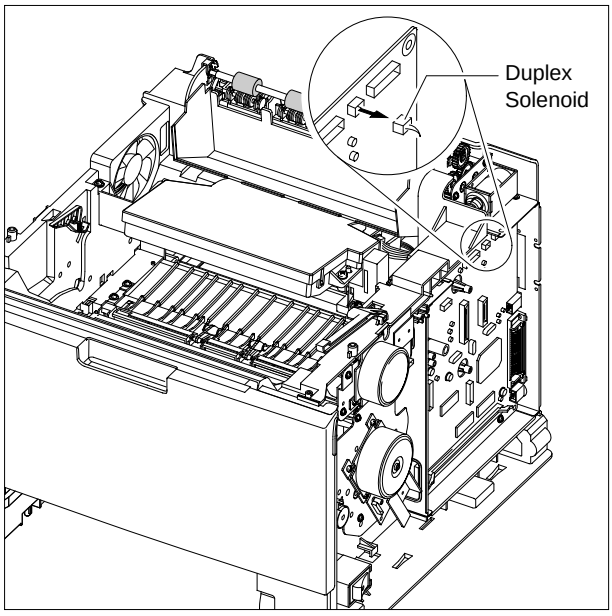
9. Remove the screw securing the Thermistor and remove it, as shown below.



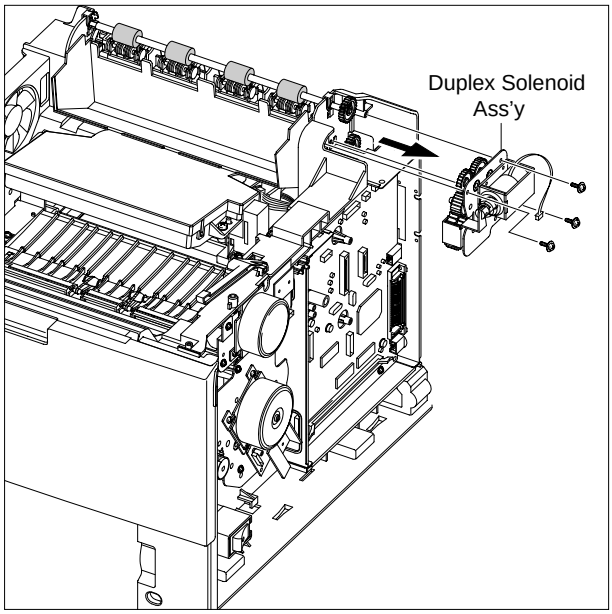
5.19 Duplex Solenoid Ass'y

1. Before you remove the Exit Solenoid Ass'y, you should remove:
   - Top Cover (Refer to the 5.15)

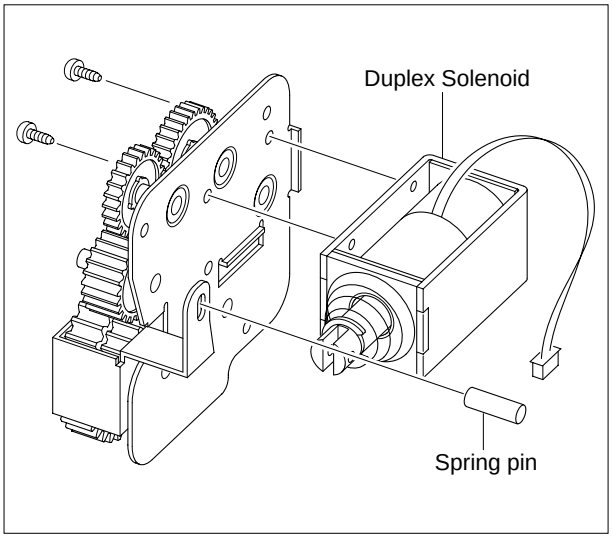
2. Unplug the Duplex Solenoid Harness from the Main PBA.



3. Remove three screws and take out the Exit Solenoid Ass'y.



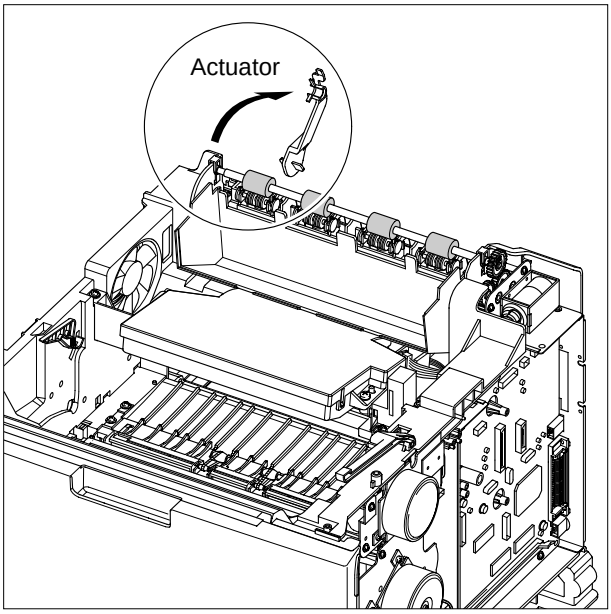
4. Remove spring pin and remove two screws and take out the Exit Solenoid.



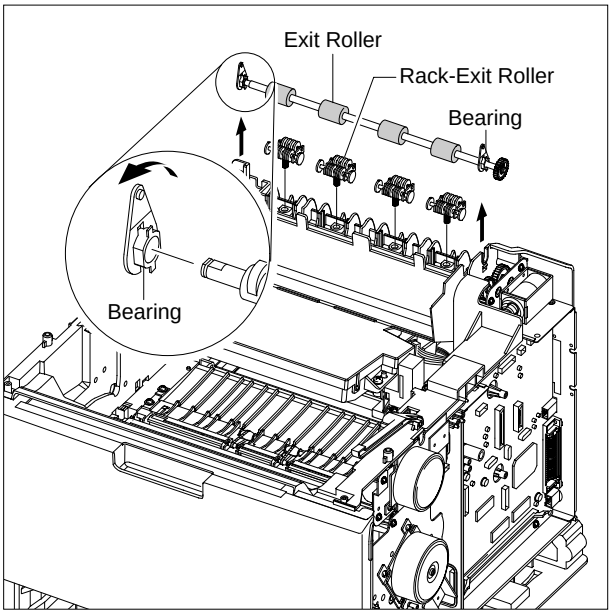
5.20 Exit Roller

1. Before you remove the Exit Roller, you should remove:
   - Top Cover (Refer to the 5.15)

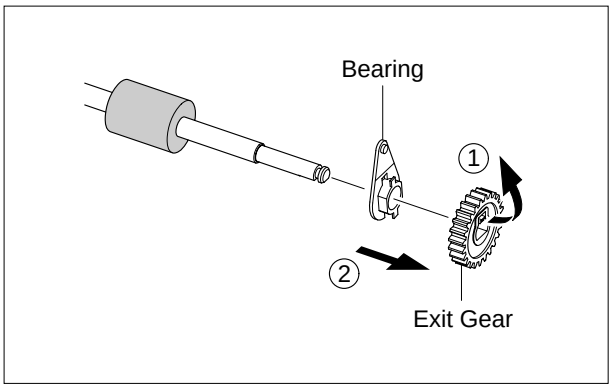
2. Take out the Actuator.



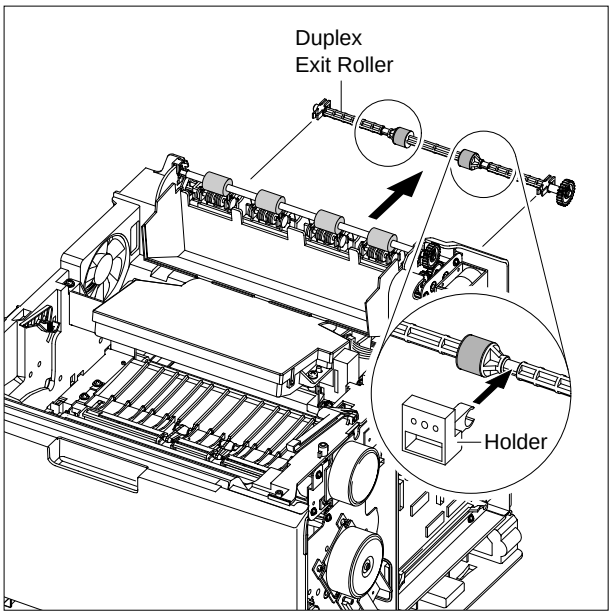
3. Remove the Exit Roller and Bearing, as shown below.



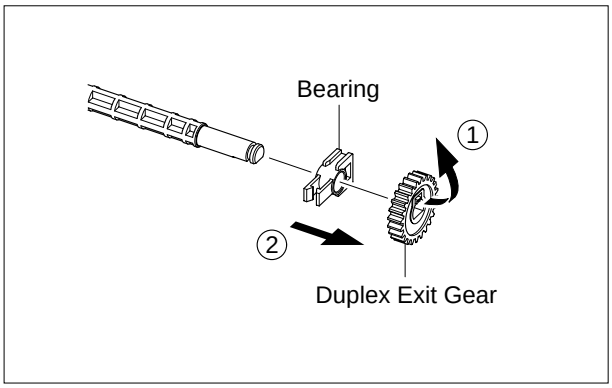
4. Release the Exit Gear, as shown below.



5. Remove the Duplex Exit Roller as same method.



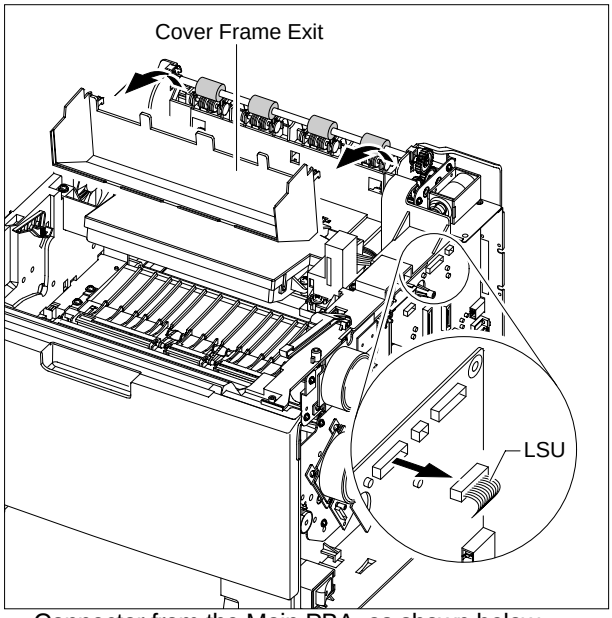
6. Release the Duplex Exit Gear, as shown below.



5.21 LSU

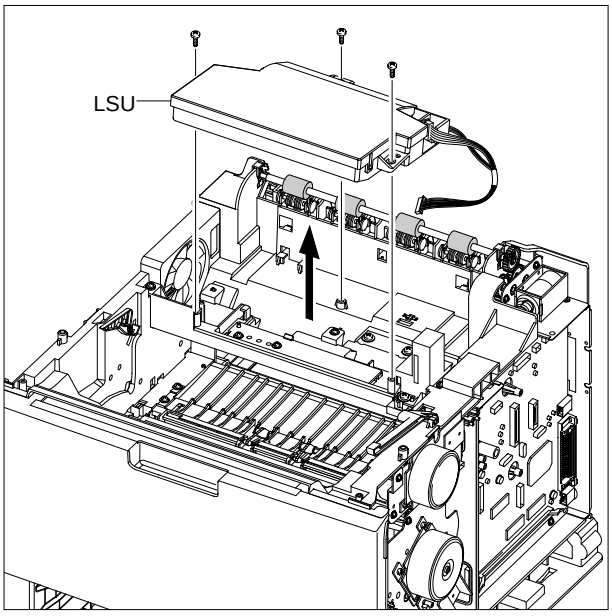
1. Before you remove the LSU, you should remove:
   - Rear Cover (Refer to the 5.14)
   - Cover Right (Refer to the 5.7)
   - Cover Left (Refer to the 5.13)
   - Top Cover (Refer to the 5.15)

2. Remove the Cover-Frame Exit and unplug the



Connector from the Main PBA, as shown below.

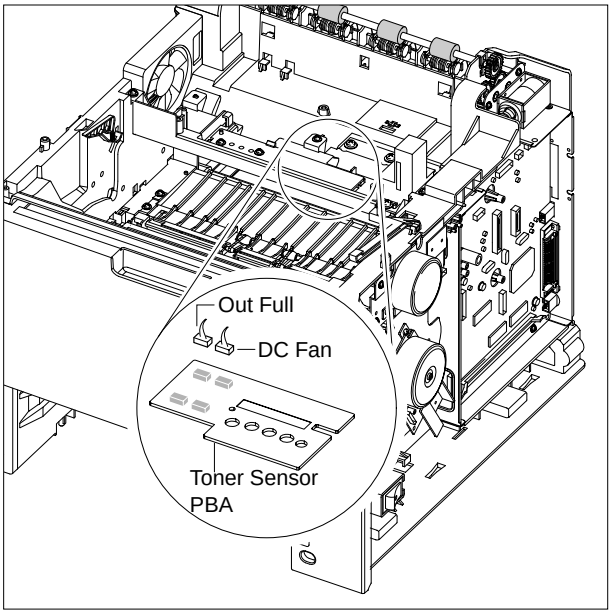
3. Remove three screws and take out the LSU.



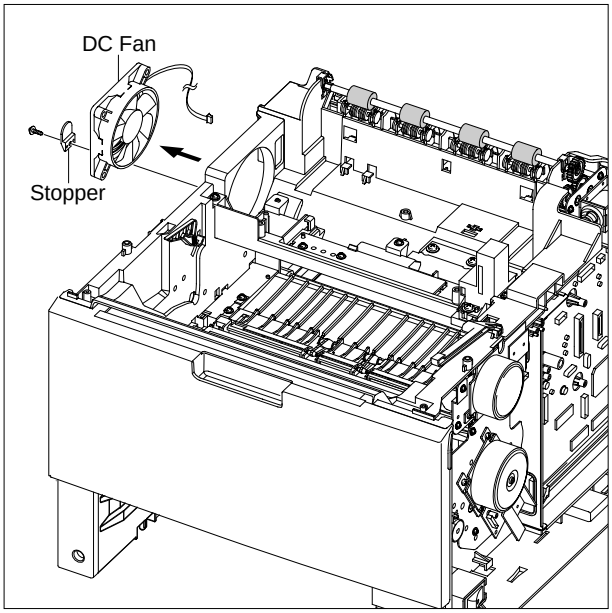
5.22 DC Fan

1. Before you remove the DC Fan, you should remove:
   - Cover Right (Refer to the 5.7)
   - Cover Left (Refer to the 5.13)
   - Cover Rear (Refer to the 5.14)

2. Unplug the two Connectors from the Toner Sensor PBA.



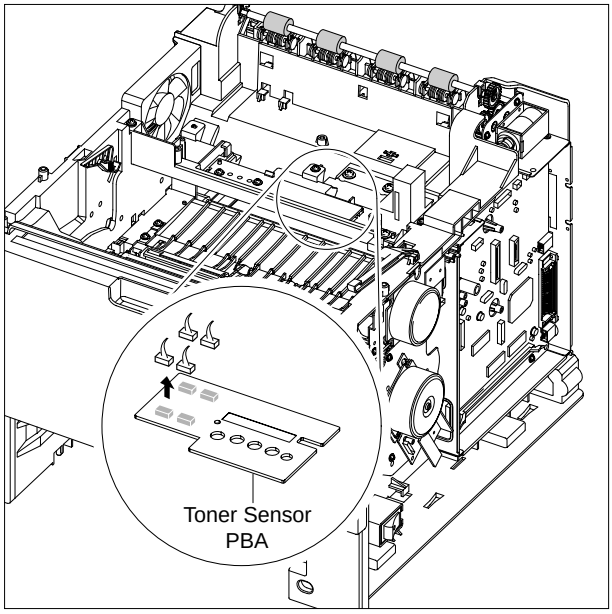
3. Remove the screw for taking out the Stopper, and then take out the DC Fan.



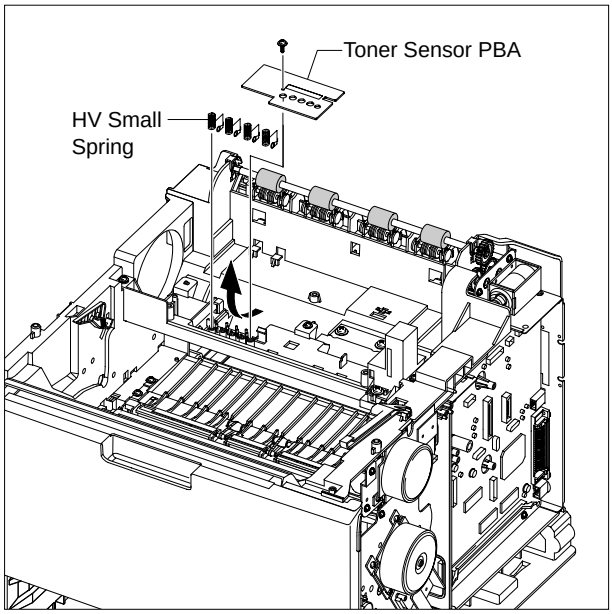
5.23 Toner Sensor PBA

1. Before you remove the LSU, you should remove:
   - Top Cover (Refer to the 5.15)
   - LSU (Refer to the 5.21)

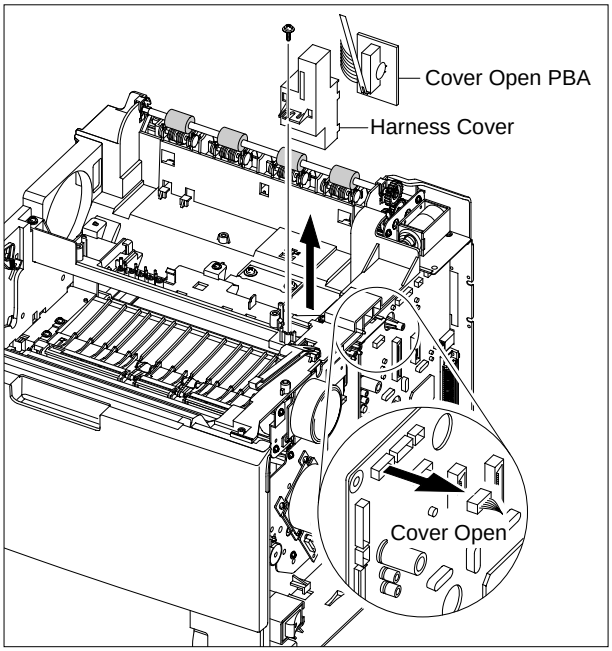
2. Unplug the all Connectors from the Toner Sensor PBA.



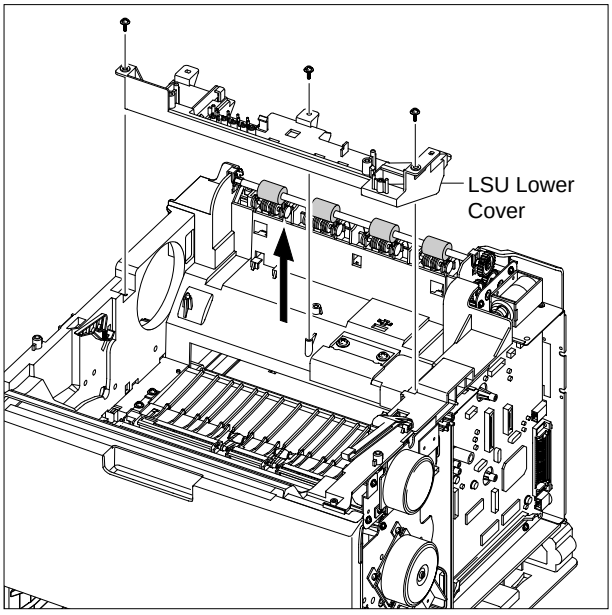
3. Remove two screws and take out the Toner Sensor PBA.



4. Remove the screw securing the Cover Open PBA and remove it. Then unplug the Connector from the Main PBA, as shown below.



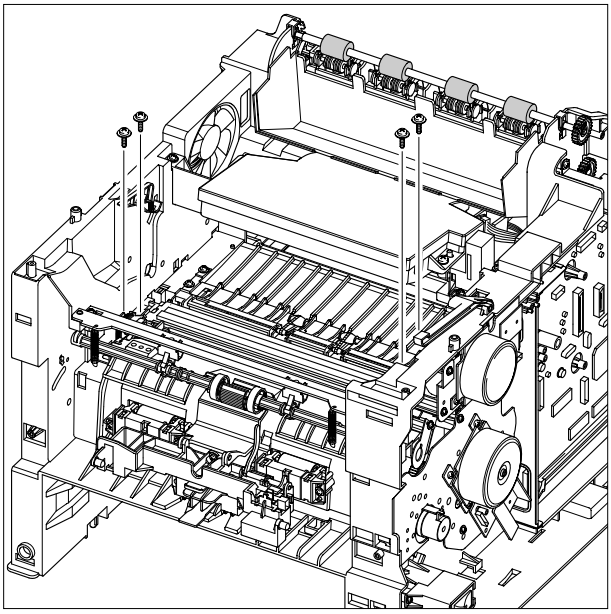
5. Remove three screws and take out the LSU Lower Cover.



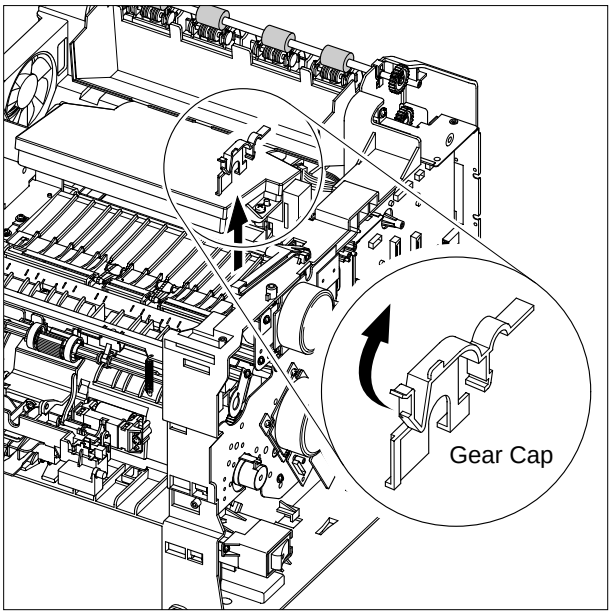
5.24 REGI Ass'y

1. Before you remove the REGI Ass'y, you should remove:
   - Top Cover (Refer to the 5.15)

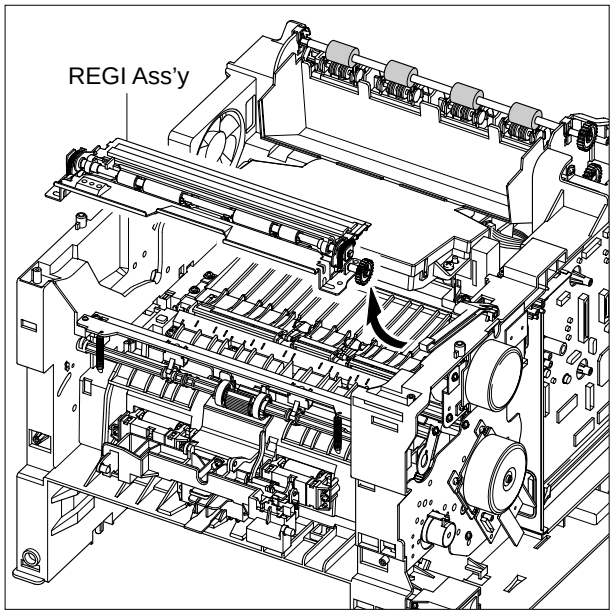
2. Unplug the Harness and remove four screws, as shown below.



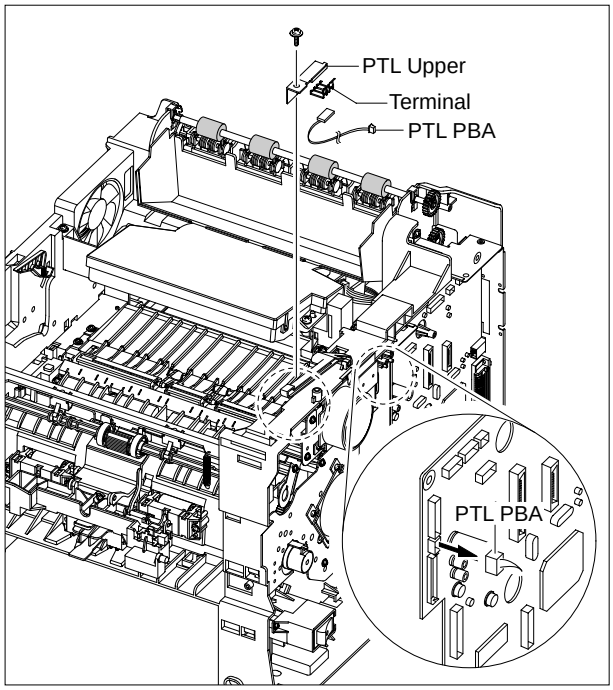
3. Release the lock as shown below and lift up the Gear Cap.



4. Take out the REGI Ass'y, as shown below.



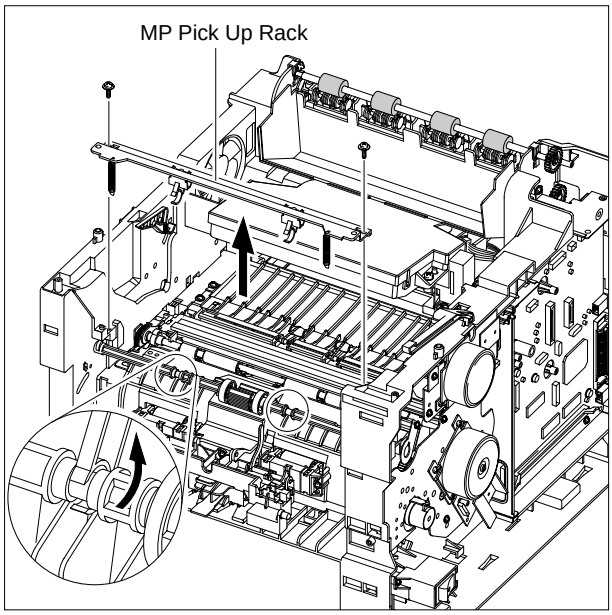
5. Unplug the Harness, remove the screw and take out the PTL PBA.



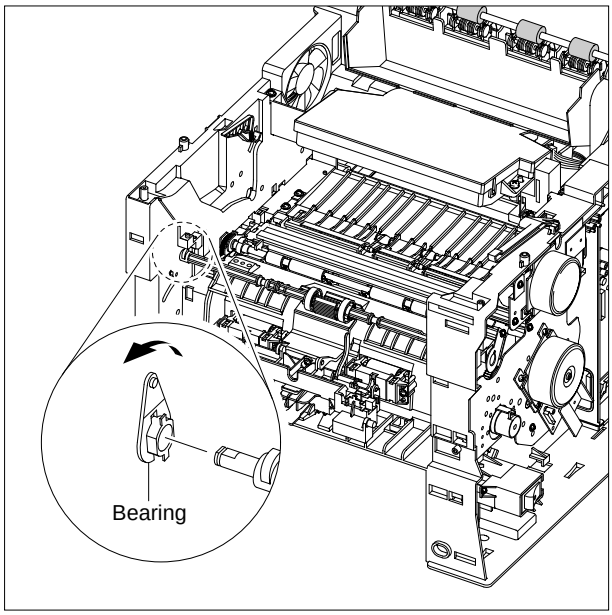
5.25 MP Pick Up Ass'y

1. Before you remove the MP Pick Up Ass'y, you should remove:
   - MPFAss'y (Refer to the5.3)
   - Main Drive Ass'y (Refer to the 5.9)
   - Top Cover (Refer to the 5.15)
   - Inner Cover (Refer to the 5.17)

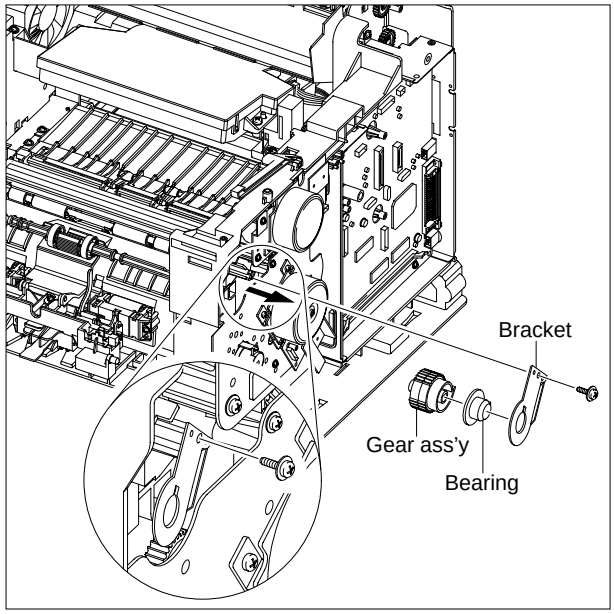
2. First of all remove two screws. Lift up the MP Pick Up Shaft for taking out the MP Pick Up Rack.



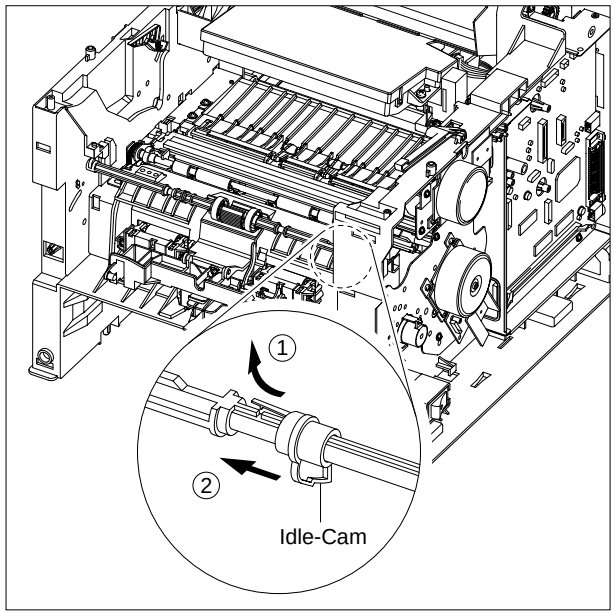
3. Remove the locking equipment rotate the Bearing in the direction of arrow.



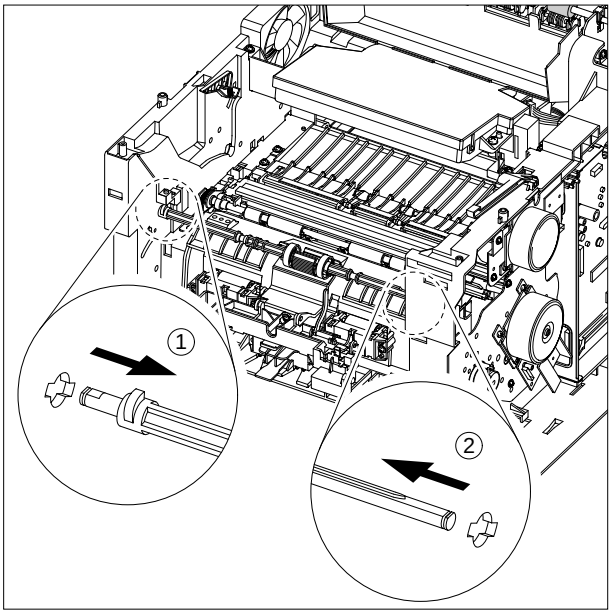
4. Remove the screw securing the Bracket and remove the Gear Ass'y, as shown below.



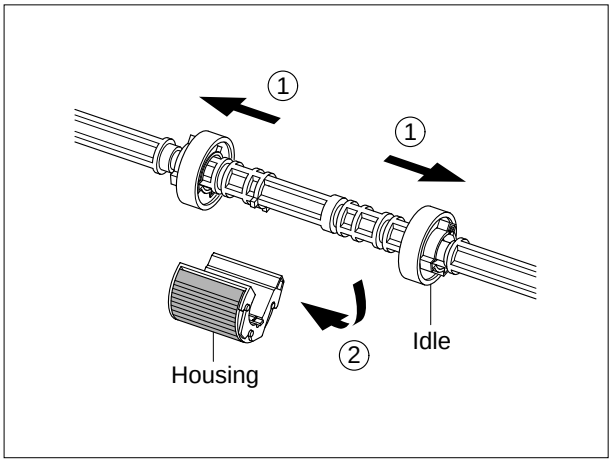
5. Slide the Cam to the right by pulling on the MP Pick Up Shaft, as shown below.



6. First lift the left side of the Shaft and then remove the Shaft.



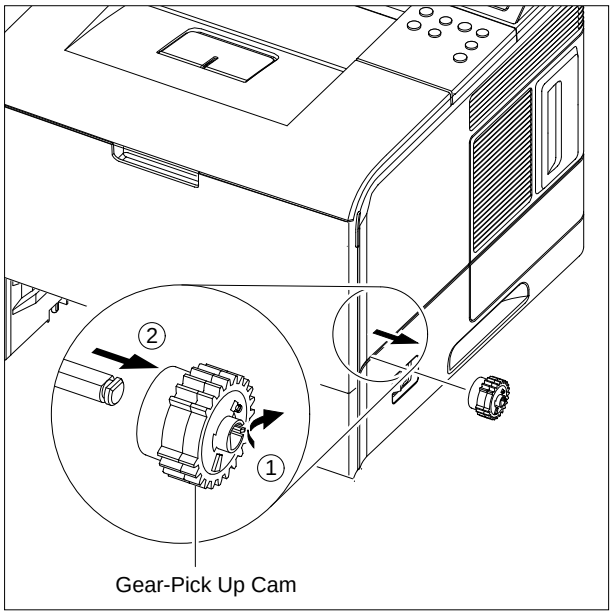
7. Push the Idle toward the ends of Shaft then take out the Housing, as shown below.



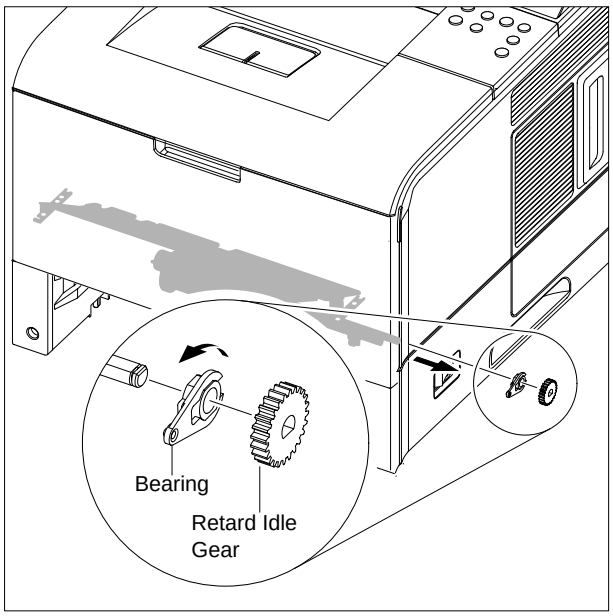
5.26 Pick Up & Feed2 Assy

1. Before you remove the Pick Up Ass'y, you should remove:
   - Main Drive Ass'y (Refer to the 5.9)
   - Right Cover (Refer to the 5.7)

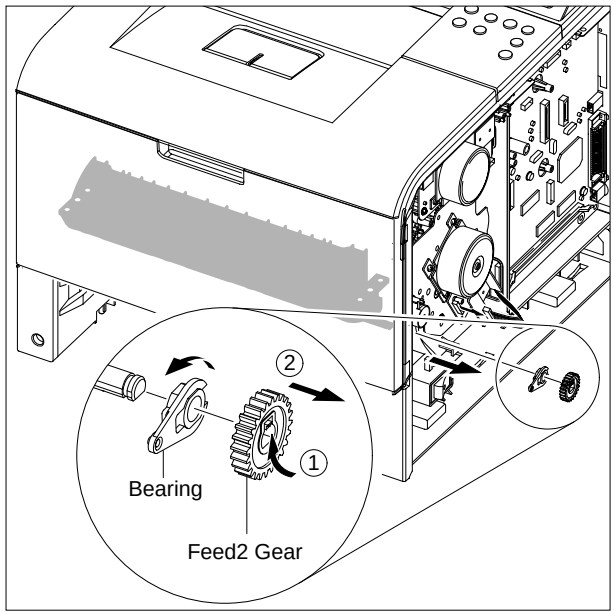
2. Remove the Gear-Pick Up Cam, as shown below.



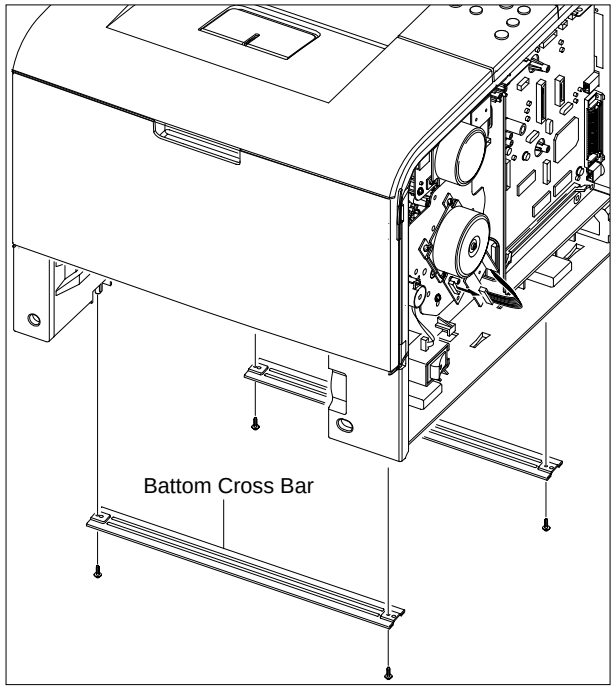
3. Remove the locking equipment rotate the Bearing in the direction of arrow, as shown below.



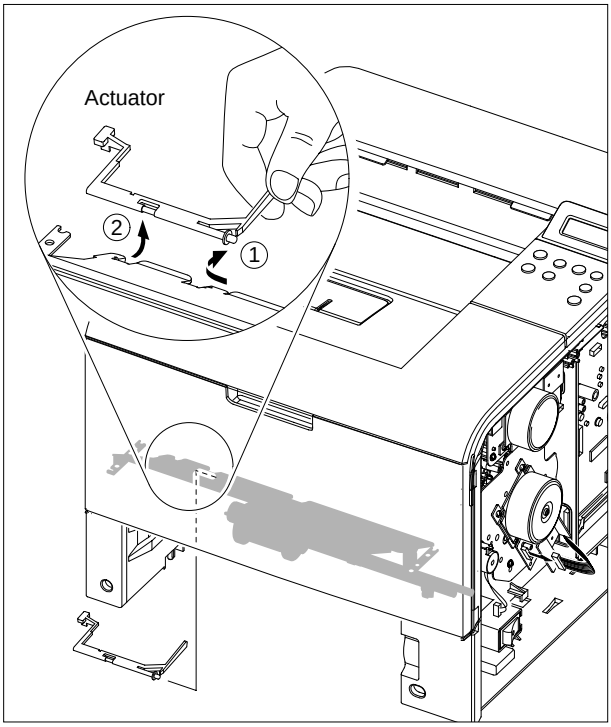
4. Release the Pick Up Gear and remove the locking equipment rotate the Bearing in the direction of arrow, as shown below.



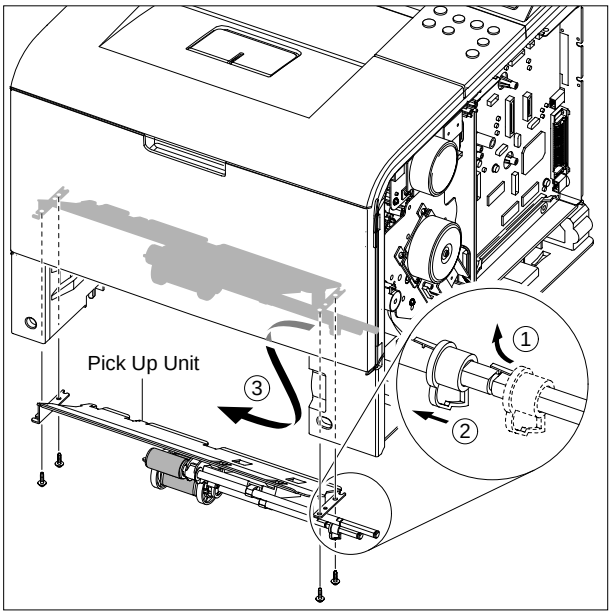
5. Remove four screws securing the Bottom Cross Bar and remove it.



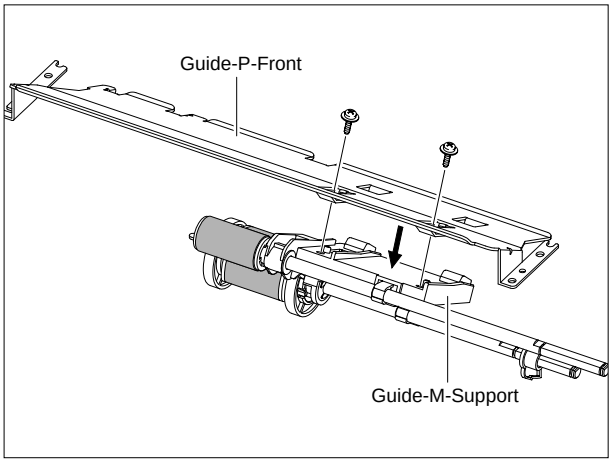
6. Remove the Actuator as shown below.



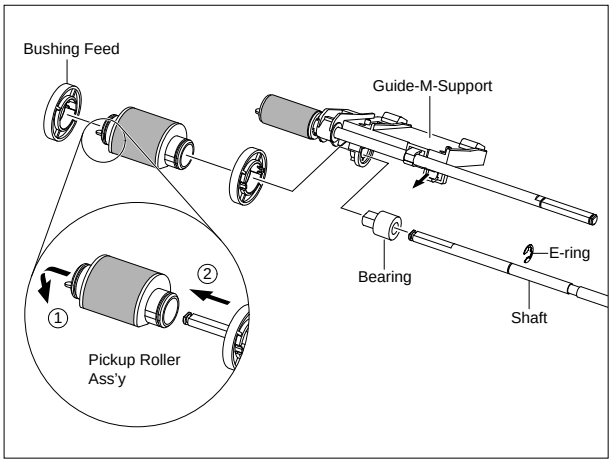
7. Remove four screws securing the Guide-P-Front. Then take out the Pick Up Unit, as shown below.



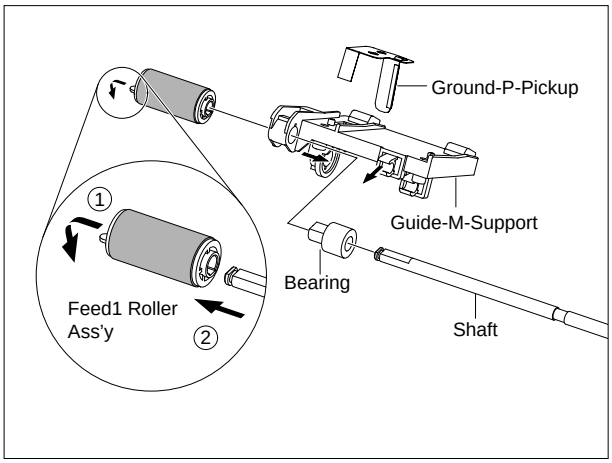
8. Remove two screws securing the Guide-M-Support and remove it.



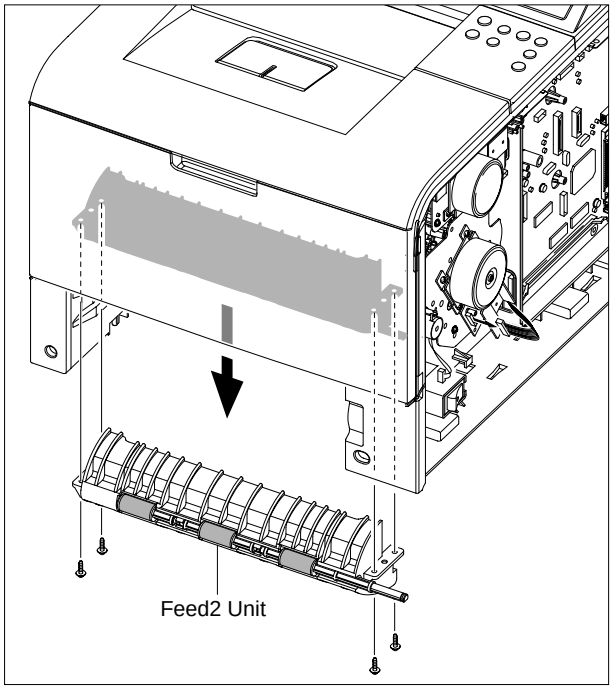
9. Remove the Feed1 Ass'y, as shown below.



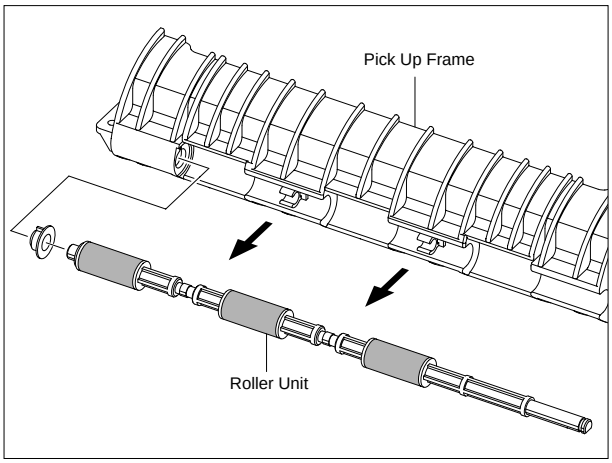
10. Remove the Feed2 Ass'y, as shown below.



11. Remove four screws securing the Feed2 Unit and remove it, as shown below.



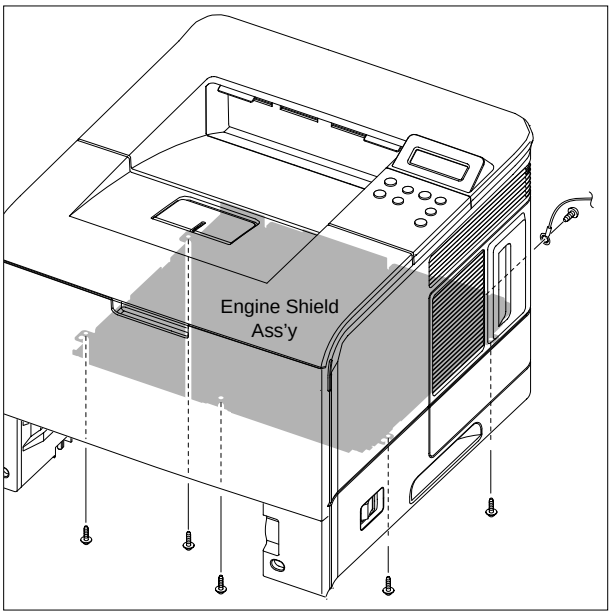
12. Remove the Roller Unit, as shown below.



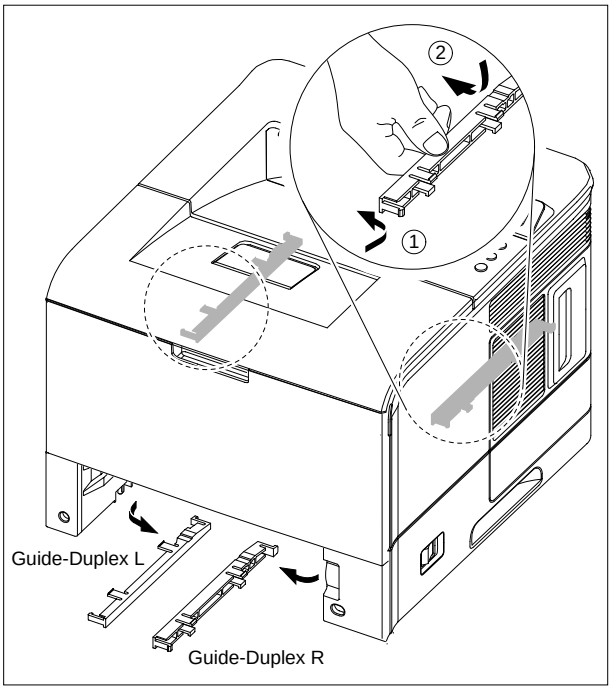
5.27 Engine Shield

1. Remove the Guide-P-Front.(Refer to the 5.16.7)

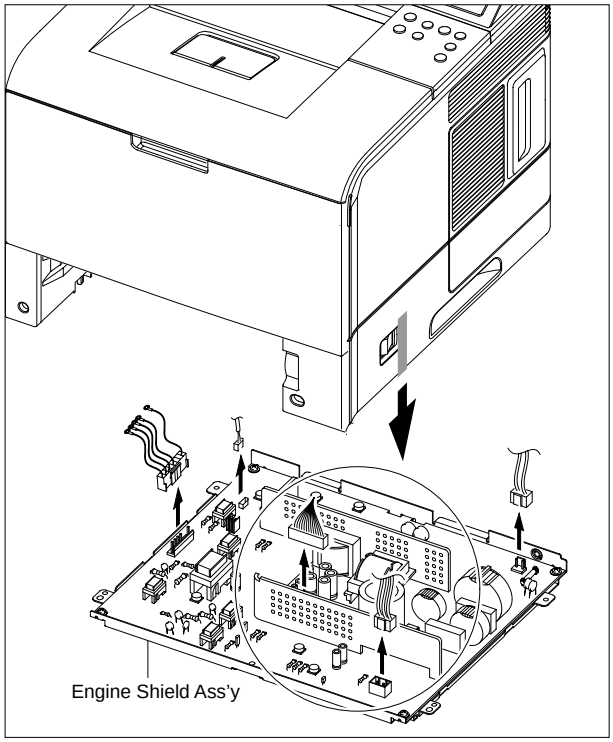
2. Remove six screws and slightly lift the Engine Shield, as shown below.



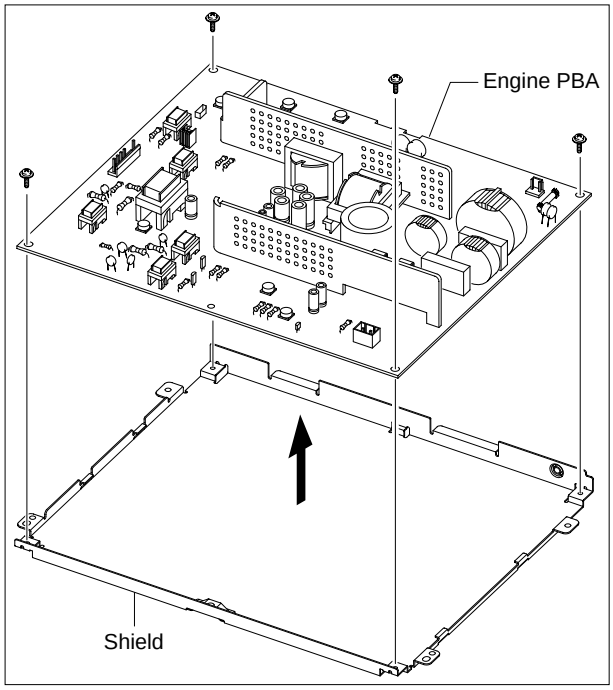
3. Remove the Duplex Guide L, R, as shown below.



4. Unplug the all Connectors from the Engine PBA. Then take out the Engine Shield Ass'y.



5. Remove four screws and take out the Engine PBA out of the Shield.



Memo

6. Alignment and Adjustments

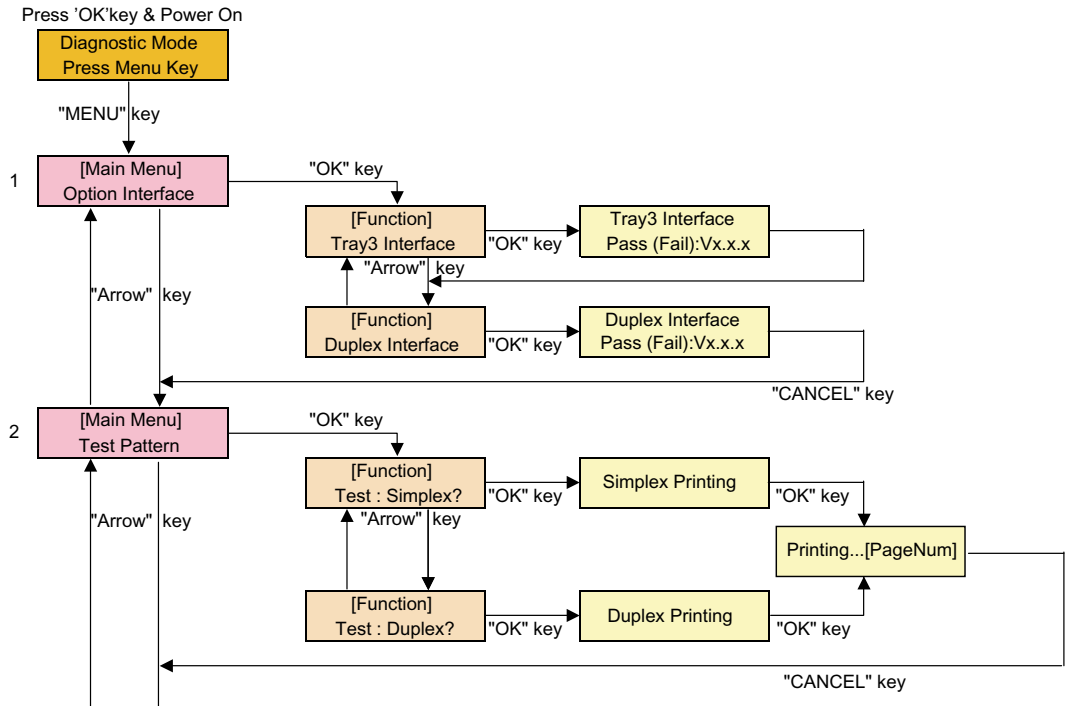
This chapter describes the main functions for service, such as the product maintenance method, the test output related to maintenance and repair, DCU using method, Jam removing method, and so on. It includes the contents of manual.

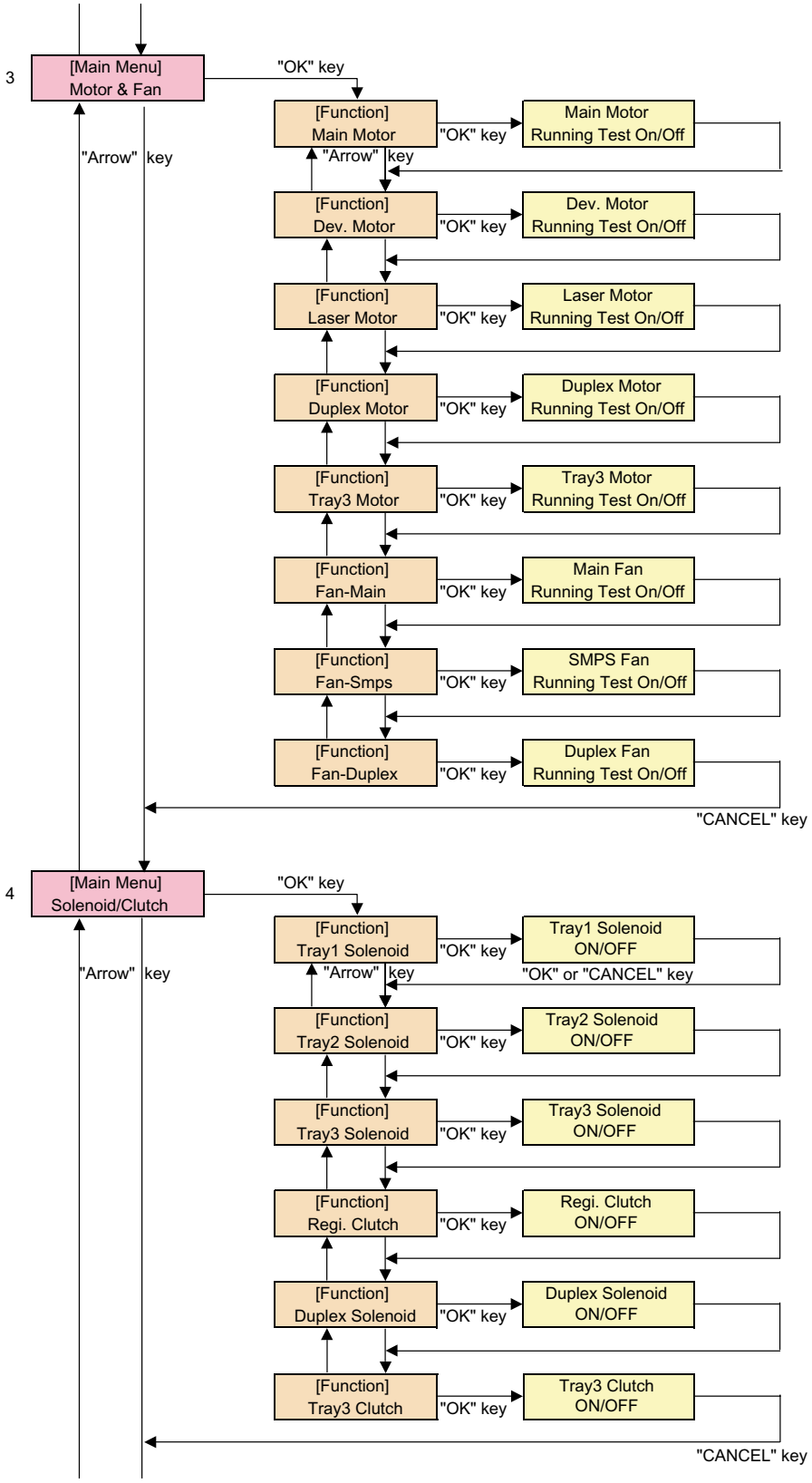
6.1 How to use EDC (Engine Diagnostic Control) Mode

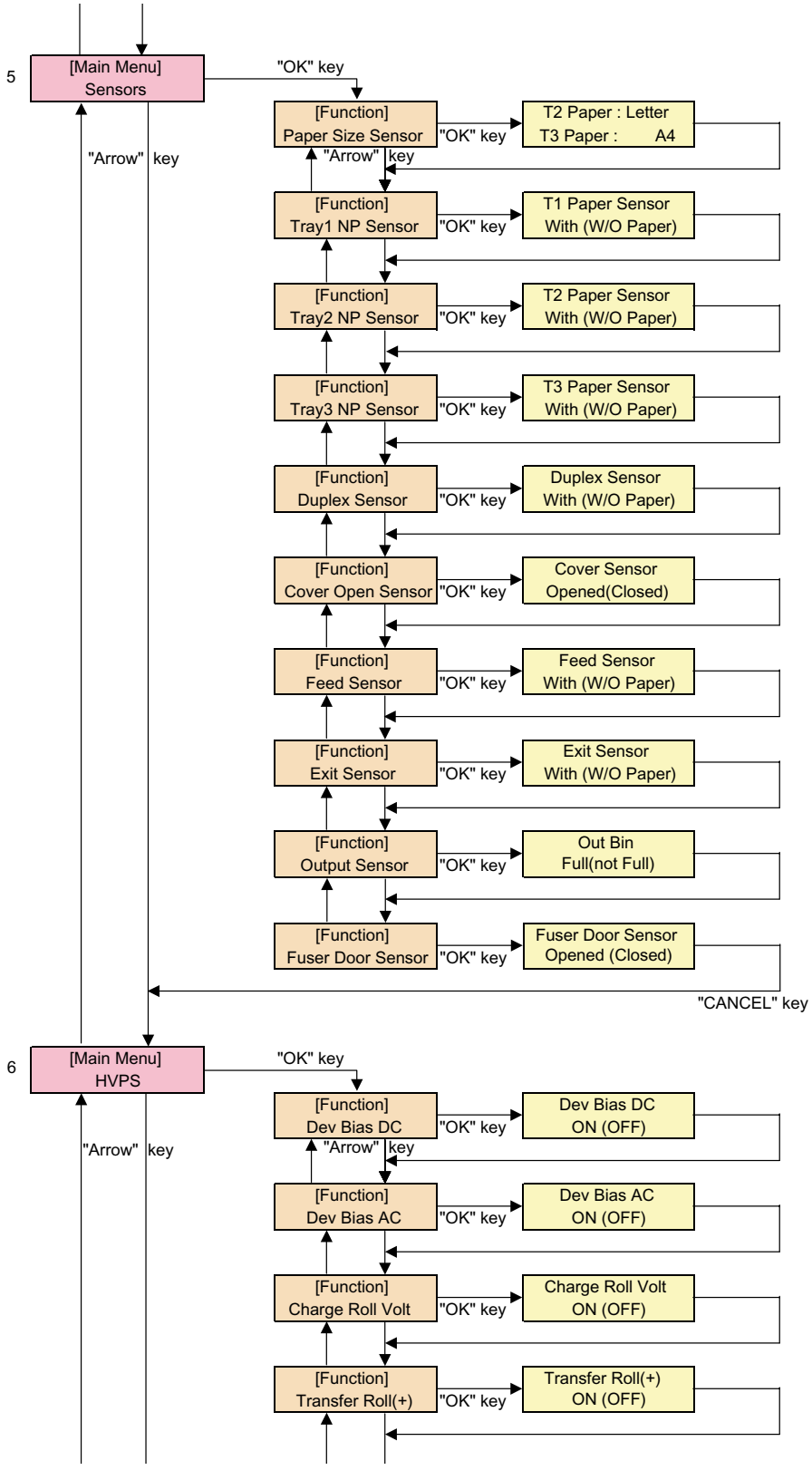
6.1.1 EDC Setup

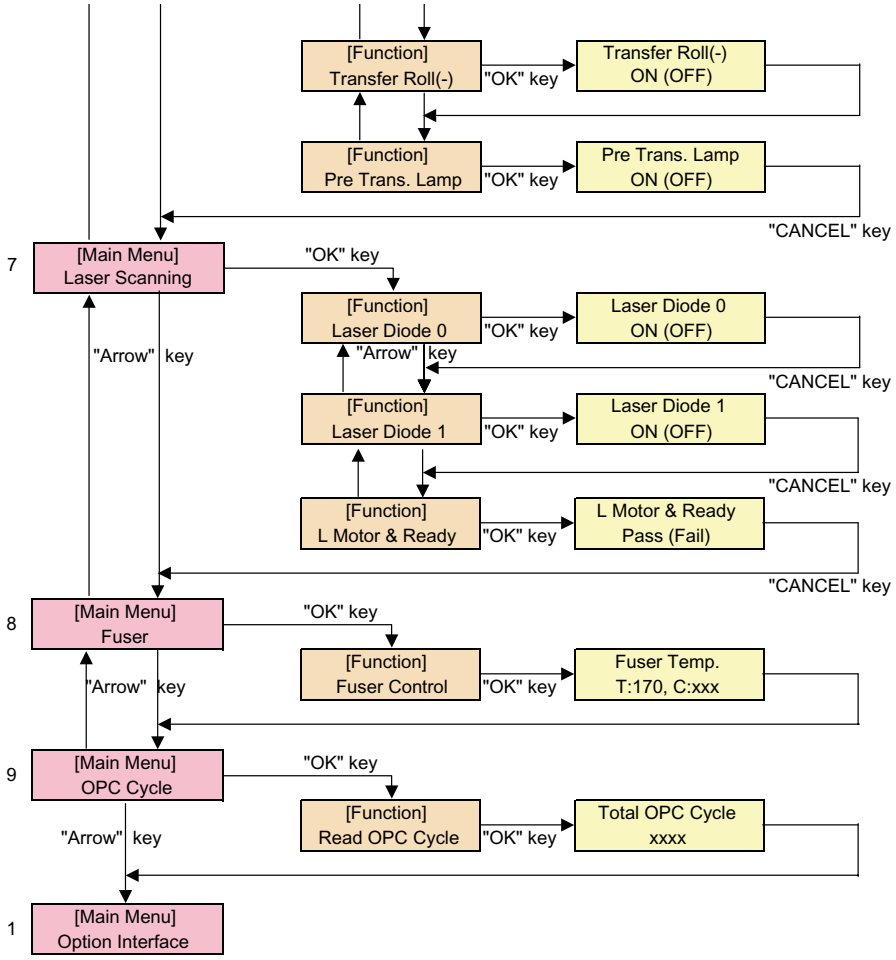
EDC(Engine Diagnostic Control, EDC will be used below) is considered to test and check whether each functions of machinery and h/w module are normal or not. All of the test function are able to be controlled by the keys and LCD window on the panel without any other kits. It's developed for related engineers, not for users.

■ Engine Diagnostic Control UI Flow Chart




3
[Main Menu]
Motor & Fan
"OK" key
"Arrow" key
[Function]
Main Motor
"OK" key
Main Motor
Running Test On/Off
"Arrow" key
[Function]
Dev. Motor
"OK" key
Dev. Motor
Running Test On/Off
[Function]
Laser Motor
"OK" key
Laser Motor
Running Test On/Off
[Function]
Duplex Motor
"OK" key
Duplex Motor
Running Test On/Off
[Function]
Tray3 Motor
"OK" key
Tray3 Motor
Running Test On/Off
[Function]
Fan-Main
"OK" key
Main Fan
Running Test On/Off
[Function]
Fan-Smps
"OK" key
SMPS Fan
Running Test On/Off
[Function]
Fan-Duplex
"OK" key
Duplex Fan
Running Test On/Off
"CANCEL" key
4
[Main Menu]
Solenoid/Clutch
"OK" key
"Arrow" key
[Function]
Tray1 Solenoid
"OK" key
Tray1 Solenoid
ON/OFF
"Arrow" key
"OK" or "CANCEL" key
[Function]
Tray2 Solenoid
"OK" key
Tray2 Solenoid
ON/OFF
[Function]
Tray3 Solenoid
"OK" key
Tray3 Solenoid
ON/OFF
[Function]
Regi. Clutch
"OK" key
Regi. Clutch
ON/OFF
[Function]
Duplex Solenoid
"OK" key
Duplex Solenoid
ON/OFF
[Function]
Tray3 Clutch
"OK" key
Tray3 Clutch
ON/OFF
"CANCEL" key


5
[Main Menu]
Sensors
"OK" key
"Arrow" key
[Function]
Paper Size Sensor
"OK" key
T2 Paper : Letter
T3 Paper : A4
"Arrow" key
[Function]
Tray1 NP Sensor
"OK" key
T1 Paper Sensor
With (W/O Paper)
[Function]
Tray2 NP Sensor
"OK" key
T2 Paper Sensor
With (W/O Paper)
[Function]
Tray3 NP Sensor
"OK" key
T3 Paper Sensor
With (W/O Paper)
[Function]
Duplex Sensor
"OK" key
Duplex Sensor
With (W/O Paper)
[Function]
Cover Open Sensor
"OK" key
Cover Sensor
Opened(Closed)
[Function]
Feed Sensor
"OK" key
Feed Sensor
With (W/O Paper)
[Function]
Exit Sensor
"OK" key
Exit Sensor
With (W/O Paper)
[Function]
Output Sensor
"OK" key
Out Bin
Full(not Full)
[Function]
Fuser Door Sensor
"OK" key
Fuser Door Sensor
Opened (Closed)
"CANCEL" key
6
[Main Menu]
HVPS
"OK" key
"Arrow" key
[Function]
Dev Bias DC
"OK" key
Dev Bias DC
ON (OFF)
"Arrow" key
[Function]
Dev Bias AC
"OK" key
Dev Bias AC
ON (OFF)
[Function]
Charge Roll Volt
"OK" key
Charge Roll Volt
ON (OFF)
[Function]
Transfer Roll(+)
"OK" key
Transfer Roll(+)
ON (OFF)


[Function]
Transfer Roll(-)
"OK" key
Transfer Roll(-)
ON (OFF)
[Function]
Pre Trans. Lamp
"OK" key
Pre Trans. Lamp
ON (OFF)
"CANCEL" key
7
[Main Menu]
Laser Scanning
"OK" key
[Function]
Laser Diode 0
"OK" key
Laser Diode 0
ON (OFF)
"Arrow" key
"Arrow" key
"CANCEL" key
[Function]
Laser Diode 1
"OK" key
Laser Diode 1
ON (OFF)
"CANCEL" key
[Function]
L Motor & Ready
"OK" key
L Motor & Ready
Pass (Fail)
"CANCEL" key
8
[Main Menu]
Fuser
"OK" key
"Arrow" key
[Function]
Fuser Control
"OK" key
Fuser Temp.
T:170, C:xxx
9
[Main Menu]
OPC Cycle
"OK" key
"Arrow" key
[Function]
Read OPC Cycle
"OK" key
Total OPC Cycle
xxxx
1
[Main Menu]
Option Interface

6.1.2 Entrance method for EDC

In order to enter the “EDC” mode, the entering method should be special because this mode is developed for the related engineers, not for end users.

- Entering the mode, the message, “Diagnostic Mode (Top Line)” is displayed.
- In this mode, an operator should press the ‘Menu’ Key to search each function he would like to test.

• **Usage**

1. Checking whether printer is powered off or not.
2. Pressing the ‘OK’ key and turn on the power.
3. Continue to press the button until the message “Diagnostic Mode” is displayed.
4. Wait until the message “Press Menu key” is displayed. And then when the message is displayed, press the ‘Menu’ key.
5. A usage method for a function you would like to test is following.

6.1.3 Interface (Options)

This function is to check a communication state between the main controller and the option controller.

• **Usage**

1. Press the “Arrow Keys (▲/▼)” until finding “[Main Menu]/ Option Interface” message on the panel.
2. Press the “OK Key” for executing this function, when it is found.
3. Searching the sub function for testing by Arrow Key.
4. When the desired function is found, press the ‘OK’ key to test.
5. The sub function is following.
   - [Function]/MANUAL TRAY Interface
   - [Function]/Duplex Interface

• **Function**

Function Name	Description	Display(LCD)	Remarks
Optional Tray Interface	After it is in the correct mode, a message is displayed on the panel. If the I/F is normal, “Pass” message will be displayed and abnormal, “Fail” displayed.	Pass (Fail): x.x.x Tray3	Xs are version.
Duplex Interface	After it is in the correct mode, a message is displayed on the panel. If the I/F is normal, “Pass” message will be displayed and abnormal, “Fail” displayed.	Duplex Interface Pass (Fail):x.x.x	Xs are version.

** The procedure and content above can be changed according to the situation.*

6.1.4 Test pattern and paper path

- This function is to check a total print process state for engine side.
- In the EDC mode, a test pattern can be printed. While the printing job is processing, a location of a paper is continuously displayed on LCD.

- **Usage**
  1. Press the "Arrow Keys (▲/▼)" until finding "[Main Menu]/ Print Pattern" message on the panel.
  2. Press the "OK Key", when it is found.
  3. Searching the sub function for testing by Arrow key
  4. When the desired function is found, press the 'OK' key to test.
  5. The sub function is following.
     - [Function]/Simplex Print
     - [Function]/Duplex Print

- **Function**

Function Name	Description	Display(LCD)	Remarks
Simplex Print	When the operator selects this mode, the page is printed out by simplex mode.	Simplex Print	<Example> Simplex Print
Duplex Print	When the operator selects this mode, the page is printed out by duplex mode.	Duplex Print	<Example> Duplex Print

If printing the test image, the printer continues to print the test image until pressing the stop button.

** The procedure and content above can be changed according to the situation.*

6.1.5 Motor and Fan

These functions are to check a current status (normal or not) of the motors and the fans.

- **Usage**
  1. Press the "Arrow Keys (▲/▼)" until finding "[Main Menu]/ Motor/ Fan" at main menu mode.
  2. Press the "OK" key, when it is found.
  3. Searching the sub function for testing by Arrow key
  4. Press the "OK" key, when it is found.
  5. Press the "OK" key for execution or the "Cancel" key for stop for the selected sub function.
  6. The sub function is following.
     - [Function]/Main Motor
     - [Function]/Dev. Motor
     - [Function]/Laser Motor
     - [Function]/Duplex Motor

- [Function]/MANUAL TRAY Motor
- [Function]/Main Fan
- [Function]/Cru Fan
- [Function]/SMPS Fan
- [Function]/Duplex Fan

• **Function**

Function Name	Description	Display(LCD)	Remarks
Main Motor	When the operator executes this function by pressing 'OK' key, the main motor is running, and it is stopped when 'Cancel' key is pressed.	Main Motor Running Test On/Off	
Dev Motor	When the operator executes this function by pressing 'OK' key, the Dev motor is running, and it is stopped when 'Cancel' key is pressed.	Dev Motor Running Test On/Off	
Laser Motor	The laser motor function processes just like the main motor function.	Laser Motor Running Test On/Off	
Duplex Motor	The Duplex motor function processes just like the main motor function.	Duplex Motor Running Test On/Off	
Optional Tray Motor	The MANUAL TRAY motor function processes just like the main motor function.a When a MANUAL TRAY is not installed, this function is not processed and "Tray3 Not Installed" is shown.	Tray3 Motor Running Test On/Off	
Main Fan	When the operator executes this function by pressing 'OK' key, the main fan is running, and it is stopped when 'Cancel' key is pressed.	Main Fan Running Test On/Off	
SMPS Fan	When the operator executes this function by pressing 'OK' key, the SMPS fan is running, and it is stopped when 'Cancel' key is pressed.	Smps Fan Running Test On/Off	
Duplex. Fan	The duplex-fan function processes just like the fan-main function.	Duplex Fan Running Test On/Off	

** The procedure and content above can be changed according to the situation.*

6.1.6 Solenoid and Clutch

These functions are to check a current state (normal or not) of the solenoids and clutches.

- **Usage**
  1. Press the "Arrow Keys (▲/▼)" until finding "[Main Menu]/ Solenoid/Clutch" message on the panel.
  2. Press the "OK Key", when it is found.
  3 Searching the sub function for testing by Arrow key
  4. Press the "OK" key, when it is found.
  5. Press the "OK" key for execution or the "Cancel" key for stop for the selected sub function.
  6. The sub function is following.
     - [Function]/Tray1 Solenoid
     - [Function]/MP Tray Solenoid
     - [Function]/MANUAL TRAY Solenoid
     - [Function]/Regi. Clutch
     - [Function]/ Duplex Solenoid
     - [Function]/ MANUAL TRAY Clutch

- **Function**

Function Name	Description	Display(LCD)	Remarks
Tray1 Solenoid	When the operator executes this function, the Tray1 Solenoid is turned on for 200ms, and then it is automatically stopped.	Tray1 Solenoid ON/OFF	
MP Tray Solenoid	When the operator executes this function, the MP Tray Solenoid is turned on for 200ms, and then it is automatically stopped.	MP Tray Solenoid ON/OFF	
Optional Tray Solenoid	When the operator executes this function, the MANUAL TRAY solenoid is turned on for 200ms, and then it is automatically stopped. a When the MANUAL TRAY is not installed, this function is not processed and "Tray3 Not installed" is shown	Tray3 Solenoid ON/OFF	
Regi. Clutch	When the operator executes this function, the Regi Clutch is turned on for 200ms, and then it is automatically stopped.	Regi. Clutch ON/OFF	
Duplex Solenoid	When the operator executes this function, the Duplex Solenoid is turned on for 200ms, and then it is automatically stopped.	Duplex Solenoid ON/OFF	
Optional Tray Clutch	When the operator executes this function, the Optional Tray Clutch is turned on for 200ms, and then it is automatically stopped.	Tray3 Clutch ON/OFF	

** The procedure and content above can be changed according to the situation.*

6.1.7 Sensors

These Functions are to check a current state (normal or not) of the Sensors.

- **Usage**

Paper Size Sensor

1. Press the "Arrow Keys (▲/▼)" until finding "[Main Menu]/ Sensors" message on the panel.
2. Press the "OK Key", when it is found.
3. Press the "Arrow keys" until finding "[Function]/ Paper Size Sensor".
4. Press the "OK Key", when it is found.
5. Pull out a tray (2 or 3, not 1) you would like to test.
6. Check the message, "MP Tray: Out (MANUAL TRAY: Empty/Out)" is displayed.
7. Fill the tray with one or more papers.
8. Put the tray back.
9. Check the message on the LCD window.
   (The top line for MP Tray and the bottom line for MANUAL TRAY)
10. Compare the paper message on the window with the real paper size.

The other sensors

1. Press the "Arrow Keys (▲/▼)" until finding "[Main Menu]/ Sensors" message on the panel.
2. Press the "OK Key" for executing this function, when it is found.
3. Searching the sub function for testing by Arrow key
4. Press the "OK" key, when it is found.
5. The sub function is following.
   - [Function]/Tray1 Paper Sensor
   - [Function]/MP Tray Paper Sensor
   - [Function]/Manual Tray Paper Sensor
   - [Function]/ Duplex Sensor
   - [Function]/ Cover Sensor
   - [Function]/ Feed Sensor
   - [Function]/ Exit Sensor
   - [Function]/ Output Bin Sensor
   - [Function]/ MP Tray Out Sensor
   - [Function]/ Manual Tray Out Sensor
   - [Function]/Fuser Door Sensor
6. Check the message that is displayed on the LCD window for the state of each sensor as touching the sensor's actuator.

- **Function**

Paper Size Sensor

Sensor	Description	Example		Remarks
		Message	Real Paper	
Paper Size Sensor	After a tray is filled with papers, confirm the paper size and compare it with the real size.	MP Tray: Letter Manual Tray: LEGAL	Letter LEGAL	

The other sensors

Sensor	Description	Display (LCD)		Remarks
		Before touching	After touching	
Tray1 Paper Sensor	After the tray 1 is pulled out, touch the sensor and confirm the message is changed or not.	Tray1 Paper Sensor W/Out Paper	Tray1 Paper Sensor With Paper	
MP Tray Paper Sensor	After the MP Tray is pulled out, touch the sensor and confirm the message is changed or not.	MP Tray Paper SensorW/Out Paper	MP Tray Paper SensorWith Paper	
Duplex Sensor	After the back cover is opened, push a paper into the duplex path and confirm the message is changed or not.	Duplex Sensor W/Out Paper	Duplex Sensor With Paper	
Cover Sensor	After the cover is open, touch the sensor and confirm the message is changed or not.	Cover Sensor Opened	Cover Sensor Closed	
Feed Sensor	After the cover is open and the toner cartridge is out, touch the sensor and confirm the message is changed or not.	Feed Sensor W/Out Paper	Feed Sensor With Paper	
Exit Sensor	After the back cover is open, push a paper into the exit path and confirm the message is changed or not.	Exit Sensor W/Out Paper	Exit Sensor With Paper	
Out BinSensor	Touch the sensor in the output Bin and confirm the message changed.	Output Bin Not Full	Output Bin Full	
MP Tray Out Sensor	Remove the MP Tray and confirm the message changed.	MP Tray In	MP Tray Out	
Manual Tray Out Sensor	Remove the MANUAL TRAY and confirm the message changed.	Manual Tray In	Manual Tray Out	

Sensor	Description	Display (LCD)		Remarks
		Before touching	After touching	
Fuser Door Sensor	After the rear cover is open, touch the fuser door sensor and confirm the message.	Fuser Door Senor Closed	Fuser Door Senor Opened	

** The procedure and content above can be changed according to the situation.*

6.1.8 HVPS

These functions are to check whether the control for HVPS is normal or not.

- **Usage**
  1. Press the "Arrow Keys (▲/▼)" until finding "[Main Menu]/ HVPS" message on the panel.
  2. Press the "OK Key", when it is found.
  3. Searching the sub function for testing by Arrow key
  4. Press the "OK" key, when it is found.
  5. The sub function is following.
     - [Function]/Dev. Bias DC
     - [Function]/Dev. Bias AC
     - [Function]/Charge Roll Volt
     - [Function]/Transfer Roller(+)
     - [Function]/Transfer Roller(-)
     - [Function]/Pre Trans. Lamp
  6. Press the "OK Key" for executing or the "Cancel key" for stopping of the sub function.

• **Function**

Function Name	Description	Display(LCD)	Remarks
Dev Bias DC	Dev bias DC is supplied after the execution (link with OK Button) key is chosen and stops when the Cancel Button is chosen.	Dev Bias DC On / Off	
Dev Bias AC	Dev bias AC is supplied after the execution (link with OK button key is chosen and stops when the Cancel button is chosen.	Dev Bias AC On / Off	
Charge Roll Voltage	Charge roller voltage is supplied after the execution (Link with OK button) key is chosen and stops when the Cancel button is chosen.	Charge Roll Volt On / Off	
Transfer Roller (+)	Transfer positive voltage is supplied after the OK button is chosen and stops when the Cancel button is chosen.	Transfer Roll(+) On / Off[%d]	[%d] is the value of the ADC
Transfer Roll (-)	Transfer negative voltage is supplied after the OK button is chosen and stops when the Cancel button is chosen.	Transfer Roll (-) On / Off	
Pre Transfer Lamp	The Pre-Transfer Lamp is on after the OK button is chosen and stops when the Cancel button key is chosen. It is possible to confirm the lamp is on after the cover is opened and the cartridge is removed.	Pre Trans. Lamp On / Off	

** The procedure and content above can be changed according to the situation.*

6.1.9 Laser Scan Unit

These functions are to check a current state (normal or not) of the Laser Scanning Unit.

- **Usage**
  1. Press the "Arrow Keys (▲/▼)" until finding "[Main Menu]/ Laser Scanning" message on the panel.
  2. Press the "OK Key", when it is found.
  3. Searching the sub function for testing by Arrow key
  4. Press the "OK" key, when it is found.
  5. The sub function is following.
     - [Function]/Laser Diode 0
     - [Function]/Laser Diode 1
     - [Function]/L Motor & Ready
  6. Press the "OK Key" for executing or the "Cancel key" for stopping of the sub function.

- **Function**

Function Name	Description	Display(LCD)	Remarks
Laser Diode_0	"Laser Diode0 On" is displayed, when the laser diode is on. On the other case "Laser Diode0 Off" is displayed.	Laser Diode0 On (Off)	
Laser Diode_1	"Laser Diode1 On" is displayed, when the laser diode is on. On the other case "Laser Diode1 Off" is displayed.	Laser Diode1 On (Off)	
L Motor & Ready	When Laser Scanning Unit is ready to print (Laser diode on, Stable polygon motor speed) the message, "Laser Ready" is displayed. On the other case "Laser Error"	L Motor & Ready Laser Ready (Laser Error)	

** The procedure and content above can be changed according to the situation.*

6.1.10 Fuser

This function is to check a current state (normal or not) of the fuser.

- **Usage**
  1. Press the "Arrow Keys (▲/▼)" until finding "[Main Menu]/ Fuser" message on the panel.
  2. Press the "OK Key", when it is found.
  3. Confirm the message, "[Function]/ Fuser Temp.".
  4. Press the "OK Key".
  5. Set the temperature with arrow keys. (Default: 170℃, Range: 150 -190℃)
  6. Press the "OK Key" for executing or the "Cancel key" for stopping this function.
  7. Compare a target temperature with a real temperature.

- **Function**

Function Name	Description	Display(LCD)	Remarks
Fuser Temp.	When "Target Temp" is displayed, Input a temperature you would like to set with the "arrow keys (▲ / ▼)" and Press the "Ok key". The target temperature and a real temperature will be displayed on the bottom line.(Default T is 170)	Fuser Temp. T: 170, C: XX	

** The procedure and content above can be changed according to the situation.*

6.1.11 Opc Cycle

-This function is to check a total rotating number of OPC drum as of the entering point.
The entering point means the time when the power is on, not the initial point of the OPC Cycle test.

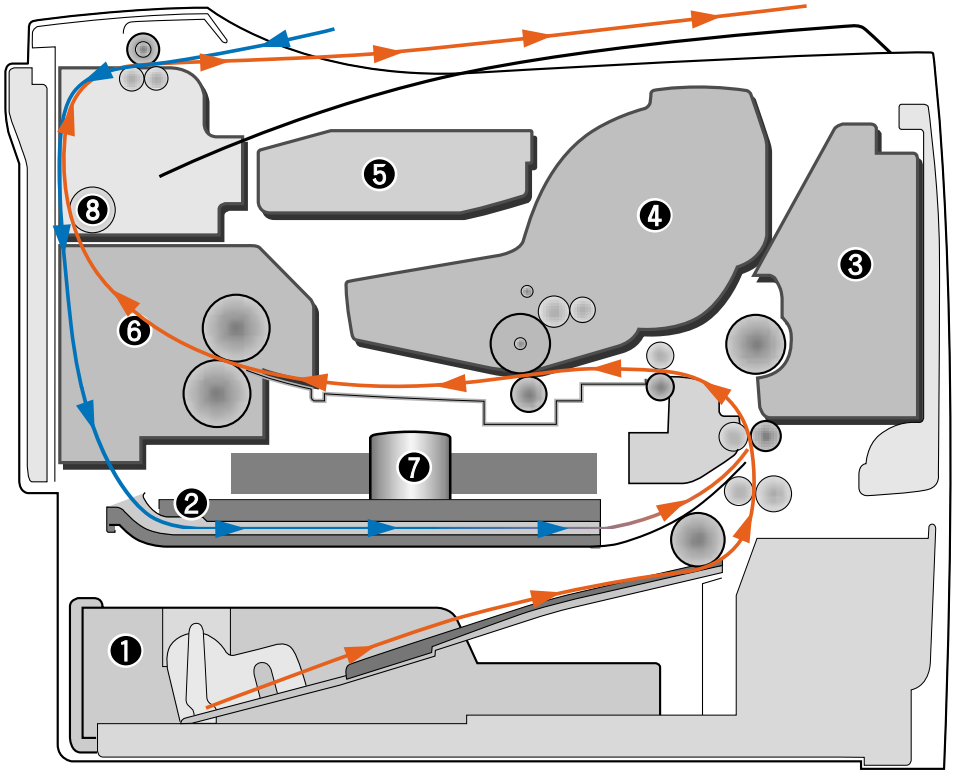
- **Usage**
  1. Press the "Arrow Keys (▲/▼)" until finding "[Main Menu]/ OPC cycle" message on the panel.
  2. Press the "OK Key", when it is found.
  3. Confirming the "[Function]/ Read OPC cycle" message, press the 'OK key'.
  4. Press the "Cancel key" for stopping this function.

- **Function**

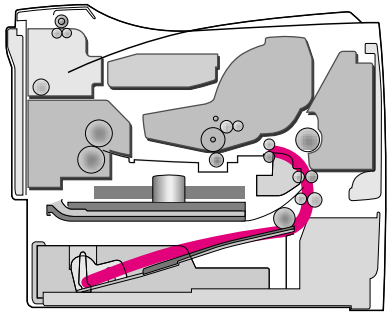
Function Name	Description	Display(LCD)	Remarks
Read OPC Cycle	A total rotating number of OPC drum is displayed on the bottom line of LCD window, when the process is on.	Total OPC-Cycle XXXX	

** The procedure and content above can be changed according to the situation.*

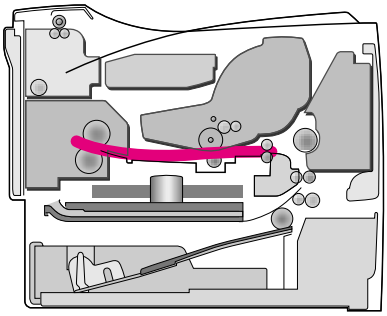
6.2 Paper Path



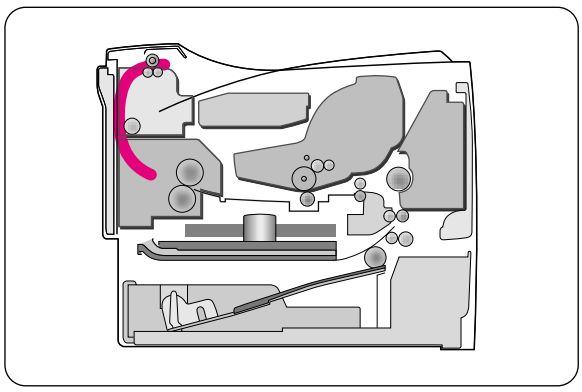
❶ Cassette
❷ Duplex
❸ MPF
❹ Print Cartridge
❺ LSU
❻ Fuser
❼ SMPS & HVPS Board
❽ Duplex Solenoid



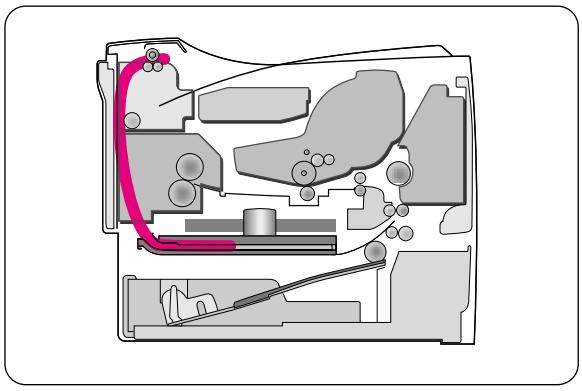
<Jam 0>



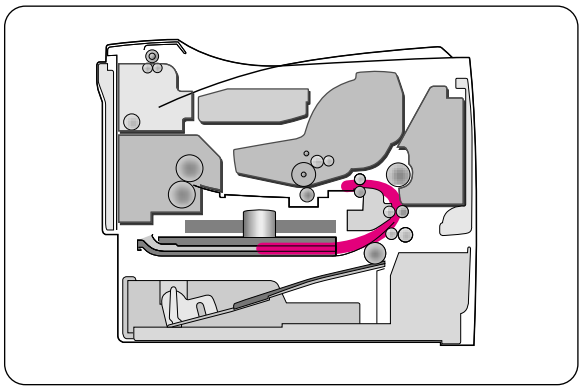
<Jam 1>



<Jam 2>



<Jam Duplex 1>



<Jam Duplex 2>

• Simplex

1) A paper is fed from a cassette or MPF by a printing order.
2) The fed paper passes a paper feeding sensor.
   - If the sensor does not operate after feeding the paper, the Jam0 occurs.
3) The paper passes a paper exit sensor, and it comes out from a machine.
   - If the tailing edge of the paper does not come out from a machine after the leading edge of the paper passes the sensor, then certain time later, a Jam2 occurs.

• Duplex

1) A paper is fad from a cassette or MPF by a printing order.
2) The fed paper passes a paper feeding sensor.
   - If the sensor does not operate after feeding the paper, a Jam0 occurs.
3) The paper that passes a paper exit sensor takes several printing processes, and moves to a paper exit sensor.
   - If the sensor does not operate after certain time, a Jam 1 occurs.
4) If the paper does not discharge until the paper passes an exit roller and a Roller-Exit-F/Down, a Jam 2 occurs.
5) The printing paper starts to be printed for duplex only by reversing rotation by an exit motor. The printing paper enters to a machine through an exit roller, and reaches to duplex sensor.
   - If the printing paper cannot reach to the duplex sensor after certain time, a duplex Jam 1 occurs.
6) The printing paper that passes the duplex sensor reaches to a feed sensor again and a printing operation is tried over again.
   - If the printing paper cannot reach to a feed sensor after certain time later, a duplex Jam 2 occurs.

6.2.1 Clearing Paper Jams

When a paper jam occurs,the display on the control panel shows the message indicating the corresponding location of the paper jam.

6.2.1.1 Tips for Avoiding Paper Jams

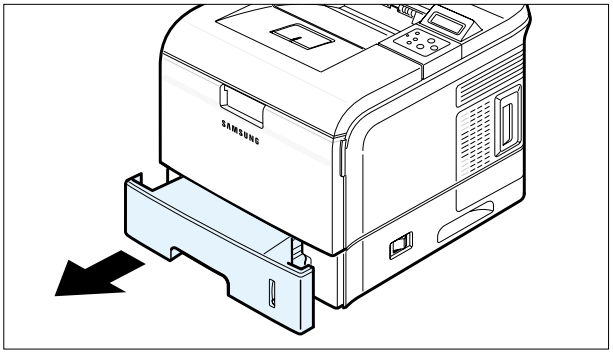
By selecting the correct paper types, most paper jams can be avoided. If a paper jam occurs, follow the steps outlined in

- Ensure that the adjustable guides are positioned correctly.
- Do not overload the tray. Ensure that the paper is below the paper capacity mark on the right inside of the tray.
- Do not remove the paper from the tray while printing.
- Flex, fan and straighten the paper before loading.
- Do not use creased, damp or highly curled paper.
- Do not mix paper types in the input tray.
- Use only recommended print media.
- Ensure that the recommended print side is facing down when loading paper into the input tray.

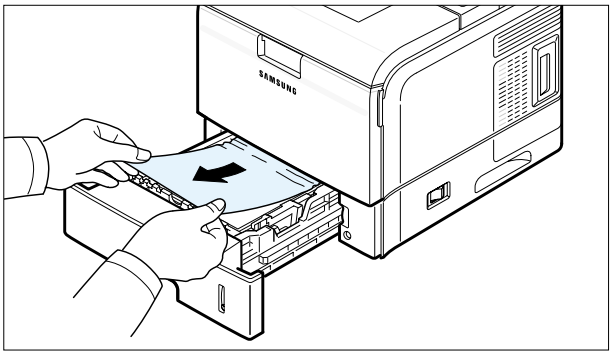
6.2.1.2 In the Paper Feed Area(Jam 0)

• In the Tray1

1. Slide out the Tray1 to expose the jammed paper.

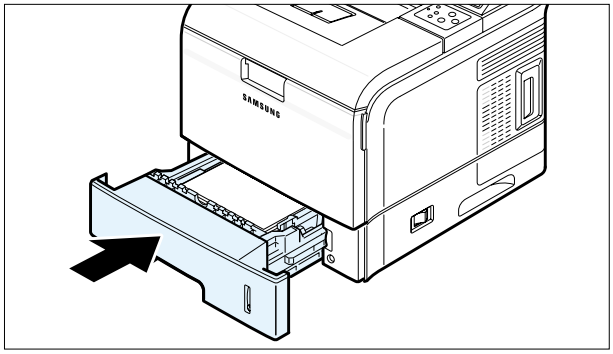


2. Remove any misfed paper by pulling it out by the visible edge from the tray.Make sure that all of the paper is properly aligned in the tray.



NOTE : If the jammed paper is not invisible or if there is resistance when you pull the paper,remove the tray from the printer and carefully pull the jammed paper free from the printer.

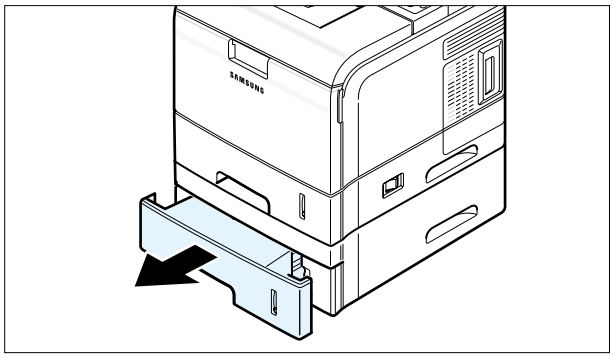
3. Slide the tray back into the printer.



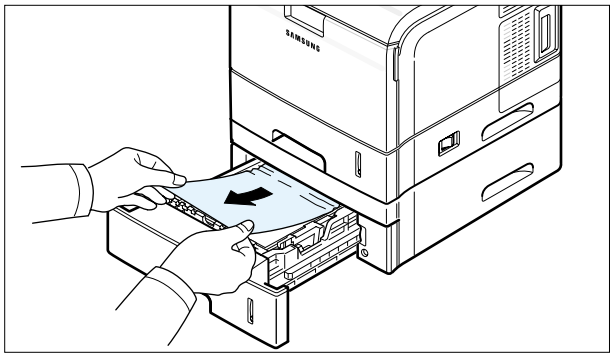
4. Open and close the top cover to resume printing.

• In the Optional MP Tray

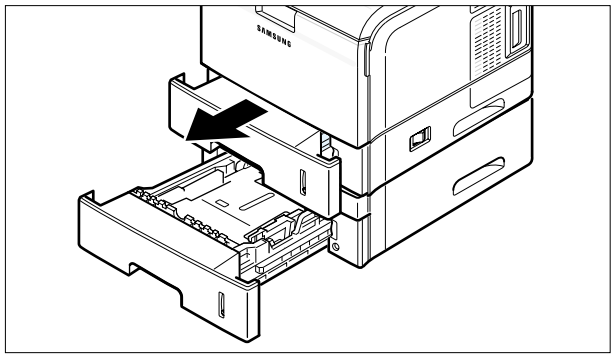
1. Pull the optional MP Tray out of the printer.



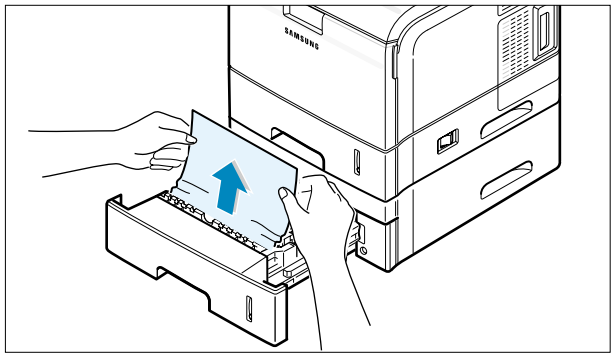
2. If you see the jammed paper,remove the paper from the tray.



3. If you cannot find the jammed paper in the MP Tray,pull the Tray1 half way out of the printer,and remove the paper.



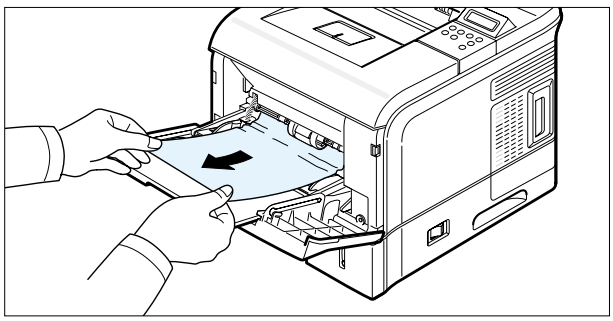
4. Slide the trays back into the printer. Open and close the top cover.Printing can be resumed.



• In the Multi-Purpose Tray

1. Open the Multi-Purpose Tray.

2. Carefully remove the jammed paper from the tray.



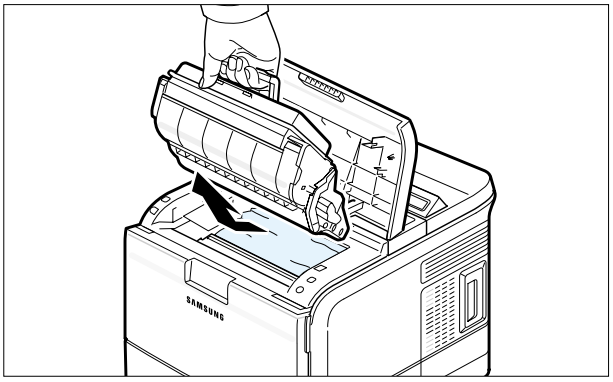
3. Open and close the top cover.Printing can be resumed.

6.2.1.3 Around the Print Cartridge (Jam1)

1. Open and close the top cover,and the jammed paper should exit the printer.

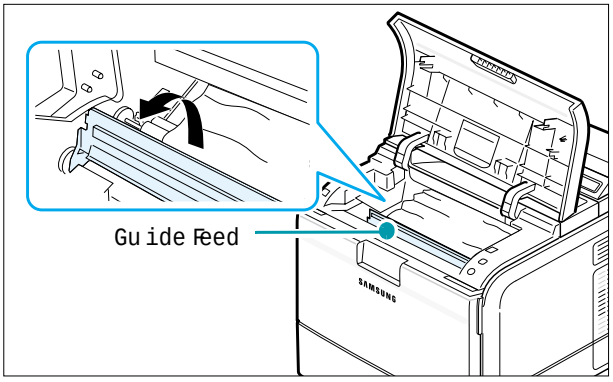
   If not,continue to Step 2.

2. Open the top cover and remove the print cartridge.

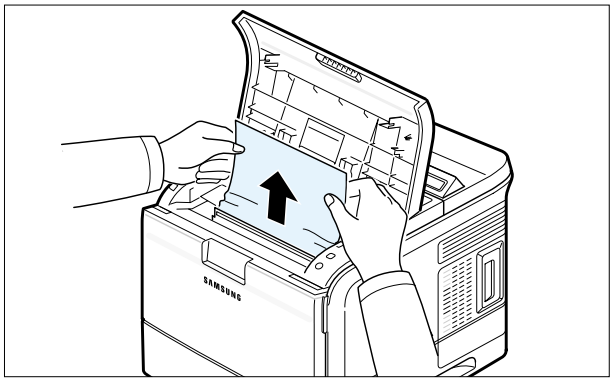


CAUTION : To prevent damage to the print cartridge,do not expose it to light for more than a few minutes.Place a piece of paper over the top of the print cartridge to shield it while it is out of the printer.

3. Carefully lift up the guide feed.

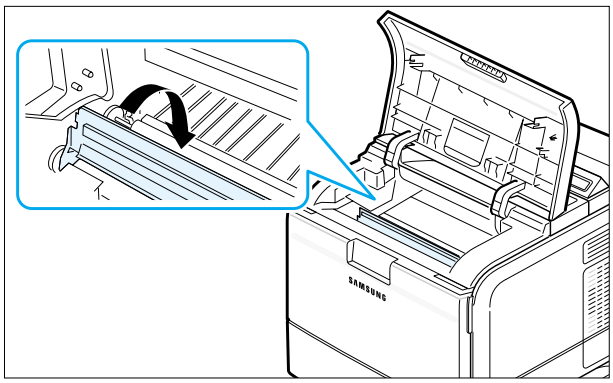


4. Gently pull the jammed paper towards you to remove it from the printer.



If the jammed paper is not visible or there is resistance when you pull the paper,go to “In the Paper Exit Area ”.

5. Flip down the guide feed and reinstall the print cartridge.

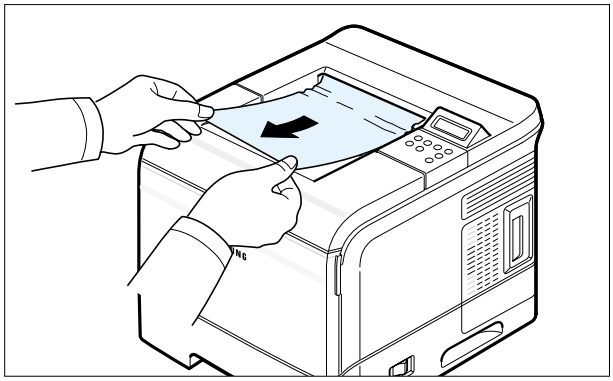


NOTE : If the print cartridge is difficult to reinstall,make sure that the guide feed has been flipped back down into position.

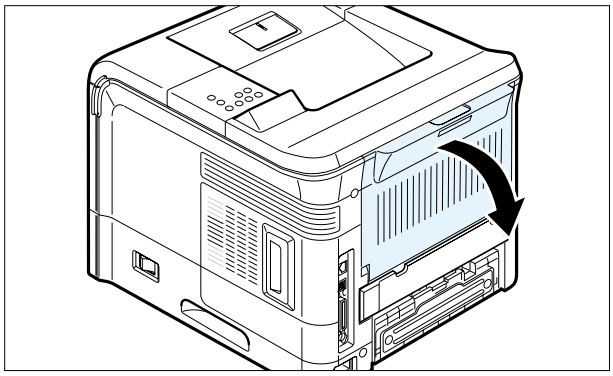
6. Close the top cover.Printing can be resumed.

6.2.1.4 In the Paper Exit Area (Jam 2)

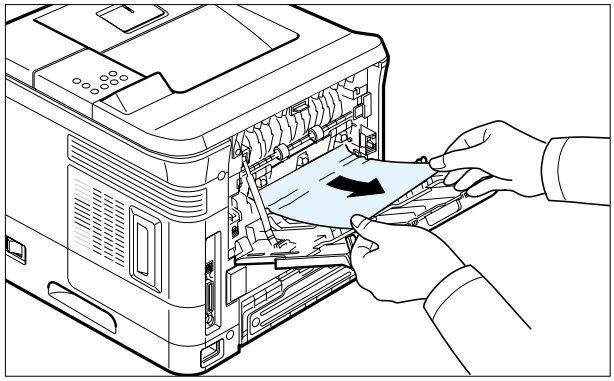
1. If a long portion of the paper is visible,pull it straight out. If not,continue to Step 2.



2. Open the rear output tray.



※ 3. Loosen the paper if it is caught in the feed rollers. Then gently pull the paper out.



4. Close the rear output tray.

5 Open and close the top cover.Printing can be resumed.

※ NOTE

>> In case the roller of fuser assembly is contaminated, clean it as follows

1. In case for Fuser Cleaning
   - Select as follows: Menu -> Setup -> Maintenance -> Fuser Cleaning

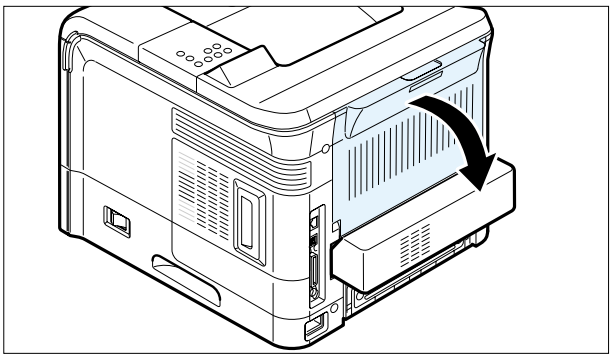
2. In case for OPC Cleaning
   - Select as follows: Menu -> Setup -> Maintenance -> OPC Cleaning

>> If contamination is still found, do clean in accordance with above method several times.

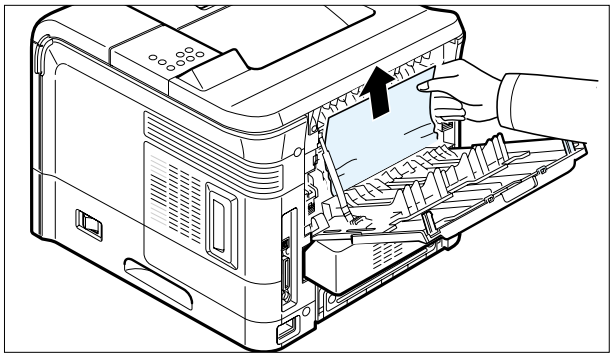
6.2.1.5 In the Duplex Area

• Duplex Jam 1

1. Open the rear output tray.



2. Remove the jammed paper.

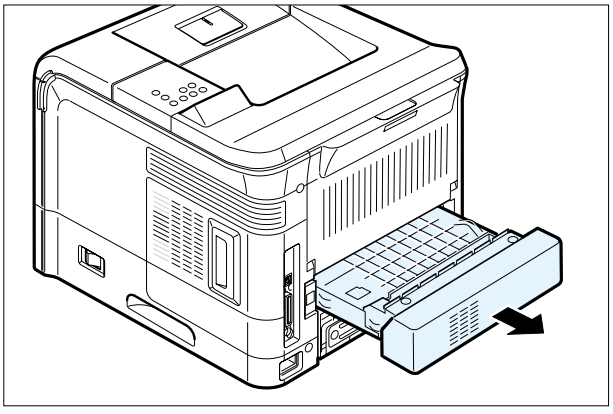


3. Close the rear output cover.

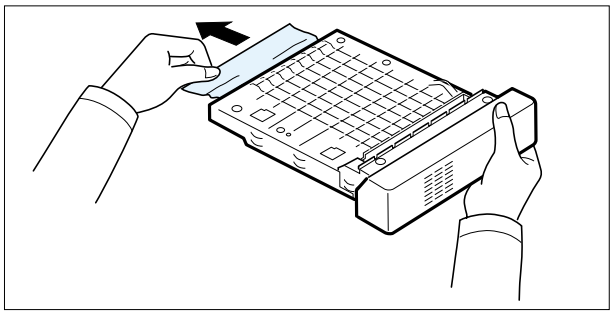
4. Open and close the top cover.Printing can be resumed.

• Duplex Jam 2

1. Pull the duplex unit out of the printer.



2. Locate the jammed paper and remove it.



3. Insert the duplex unit into the slot.

4. Open and close the top cover. The printer will resume printing.

6.3 Sample Pattern

This product has the several sample patterns for maintenance. With the sample patterns, check the existence of the abnormality. The patterns help to regularly maintain the product.

6.3.1 Information Pages

Your printer comes with a set of information pages that helps you solve printing problems and obtain the best results from your printer. You can access these pages from the printer's front panel.

To print information pages:

1. On the printer's front panel, press the Menu button, then press the Enter button to select Information.
2. Select Info Pages, then press the Enter button.
   ① Slect key(← , →), tind to intormation menu.
   ② Press Enter key, sutch to intormation page.
   ③ Press Enter key, the printing.

* 3. Select the appropriate information page, then press the Enter button to print.

* If installed The HDD, select press(1~3 times), then display intormation menu.

Note : *Print the "Menu Map" to see other information pages available for printing.*

6.3.2 Demo Pages

Your printer comes with a set of sample pages which demonstrate different functions.

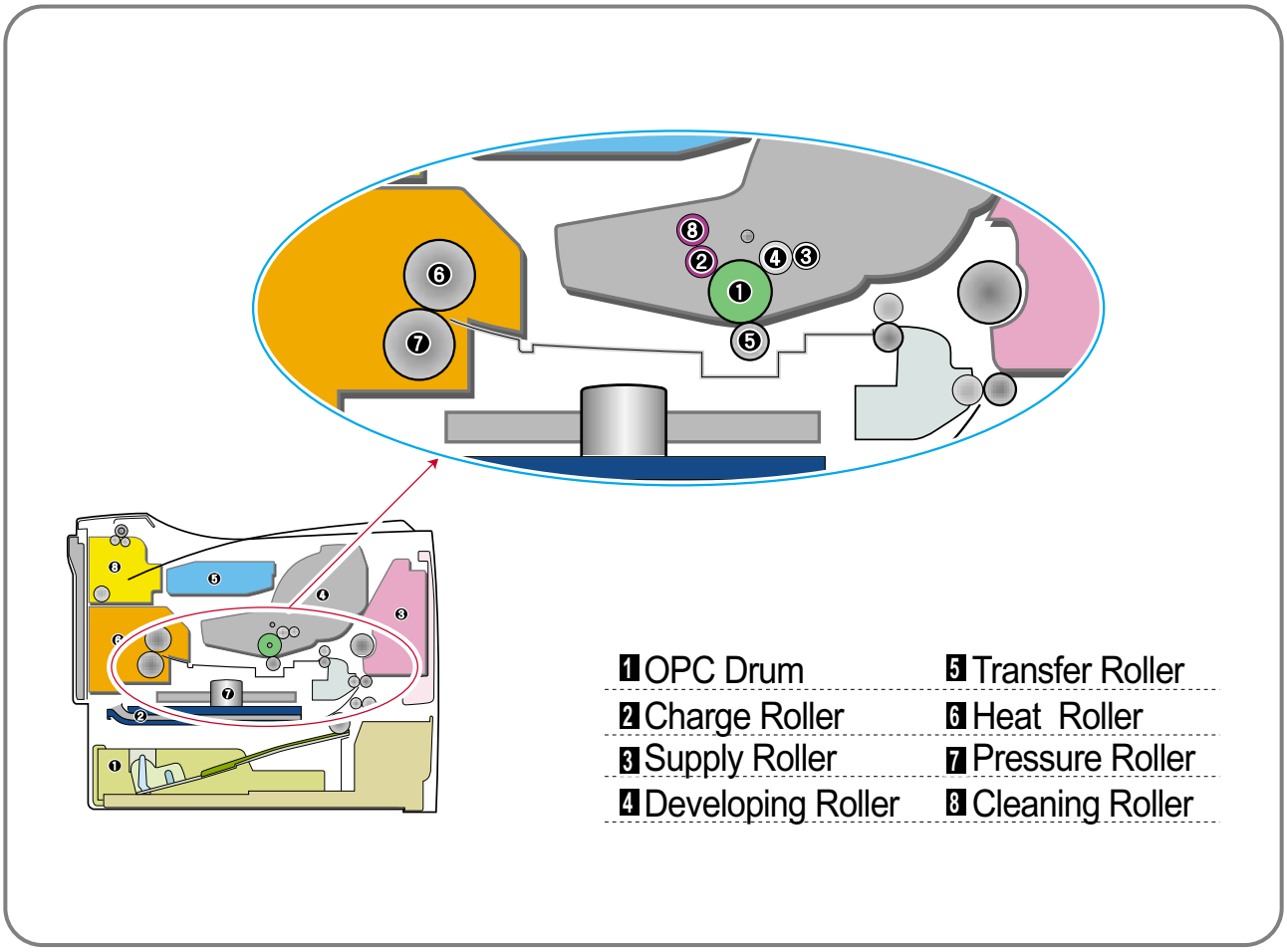
To print sample pages:

1. On the printer's front panel, press the Menu button, then press the OK button to select Information.
2. Select Demo Pages, then press the OK button.
3. Select the desired sample page, then press the OK button to print.

6.4 Periodic Defective Image

If the delinquent image regularly occurs in the printed-paper, it is due to delinquent or damaged roller. Refer to the table in below and check the condition of the roller.

No	Roller	Defective image	Typical defect
1	OPC Drum	95 mm	white spot on black image or black spot
2	Charge Roller	38 mm	black spot
3	Supply Roller	45 mm	light or dark horizontal image band
4	Developing Roller	43 mm	horizontal image band
5	Transfer Roller	55 mm	image ghost
6	Heat Roller	126 mm	Black spot and image ghost
7	Pressure Roller	126 mm	black spot on the backside



<Rollers Layout>

6.5 Error Messages

The front panel displays the printer's status or error messages. Refer to the list below for an explanation of these messages and how to clear problems. The messages and their meanings are listed in alphabetical order, with numbered messages following.

Message	Meaning	Suggested solutions
Door Open	The front cover or rear cover is not securely latched.	Close the cover until it locks into place.
Duplex Jam 0 Check Inside	Paper has jammed during duplex printing.	Clear the jam.
Duplex Jam 1 Open/Close Door	Paper has jammed during duplex printing.	Clear the jam.
Fuser Door Open	The fuser door is not securely latched.	Open the rear cover and close the fuser door until it locks into place. For the location of the fuser door.
Install Toner	A toner cartridge is not installed.	Install a toner cartridge.
Invalid Toner	The toner cartridge you have installed is not for your printer.	Install a Samsung-genuine toner cartridge, designed for your printer.
Load Manual Press Stop Key	The multi-purpose tray is empty in manual feed mode.	Load a sheet of print material and press **Stop** (if you use the ML-3050) or **OK** (if you use the ML-3051N or ML-3051ND). You need to press **Stop** or **OK** each page to be printed.

Message	Meaning	Suggested solutions
Low Heat Error Cycle Power	There is a problem in the fuser unit.	Unplug the power cord and plug it back in. If the problem persists, replace to the Fuser unit.
LSU Hsync Error Cycle Power	A problem has occurred in the LSU (Laser Scanning Unit).	Unplug the power cord and plug it back inches. If the problem persists, replace to the LSU-unit.
LSU Motor Error Cycle Power	A problem has occurred in the LSU (Laser Scanning Unit).	Unplug the power cord and plug it back inches. If the problem persists, replace to the LSU-unit.
Main Motor Locked	There is a problem in the main motor.	Open and then close the front cover.
Open Heat Error Cycle Power	There is a problem in the fuser unit.	Unplug the power cord and plug it back in. If the problem persists, replace to the Fuser unit.
Over Heat Error Cycle Power	There is a problem in the fuser unit.	Unplug the power cord and plug it back in. If the problem persists, replace to the Fuser unit.
Paper Jam 0 Open/Close Door	Paper has jammed in the feeding area of the tray.	Clear the jam.
Paper Jam 1 Open/Close Door	Paper has jammed in the fuser area.	Clear the jam.
Paper Jam 2 Check Inside	Paper has jammed in the paper exit area.	Clear the jam.
Printing...	The printer is printing jobs using the displayed language.	Complete your printing.
Ready	The printer is on-line and ready to printer.	Use your printer.

Message	Meaning	Suggested solutions
Replace Toner	This message appears between the **Toner Empty** and **Toner Low** status.	Replace the toner cartridge with a new one.
Self Diagnostic...	The engine in your printer is checking some problems detected.	Please wait a few minutes.
Sleeping...	The printer is on power save mode.	When data is received, it switches to on-line automatically.
Toner Empty	The toner cartridge has run out. The printer stops printing.	Replace the toner cartridge with a new one.
Toner Low	The toner cartridge is almost empty.	Take out the toner cartridge and thoroughly shake it. By doing this, you can temporarily reestablish printing operations.
Tray 1 Paper Empty	There is no paper in the tray 1.	Load paper in the tray 1.
Tray 2 Paper Empty	There is no paper in the optional tray 2.	Load paper in the optional tray 2.

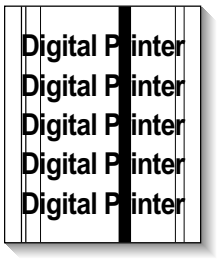
7. Troubleshooting

7.1 The cause and solution of Bad image

7.1.1 Vertical Black Line and Band

• Description

1. Straight thin black vertical line occurs in the printing.
2. Dark black vertical band occur in the printing.



Check and Cause	Solution
1. Deformed Doctor-blade or cleaning-blade, in print cartridge	1. If causes 1 and 2 occur in the print cartridge, replace the print cartridge and try to print out.
2. Scratched surface of the charge roller in the print cartridge.	2. Replace the transfer roller if occurred as No. 3.
3. Partly depression or deformation on the surface of the transfer roller.	

7.1.2 Vertical White Line

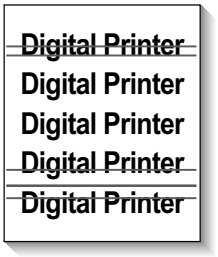
• Description White vertical voids in the image.

Check and Cause	Solution
1. Foreign matter stuck onto the window of internal lenses of LSU mirror.	1. Foreign matter stuck onto the window : Clean the LSU window with recommend-ed cleaner(IPA) Clean the window with a clean cotton swab.
2. Foreign matter or toner particles between the print cartridge roller and blade. (In case the life of the print cartridge has been expired, white lines or light image occur in front of the image.)	2.. Replace the print cartridge.
3. It may occur when Burr and foreign substances are on the window of the print cartridge frame.	3. No 3. : Remove the foreign matter and burr of the exposure window. (print cartridge)
4. If the fuser is defective, voids occur periodically at the top of a black image.	4. No. 4. : Open the front cover and check ribs that corresponds to the position of the voids. Remove if found.
5. It may occur when foreign substances are on the OPC Drum.	5. If the problems are not solved, replace the print cartridge.
6. Partly depression or deformation on the surface of the transfer roller	6. Replace the transfer roller if occured as NO.6

7.1.3 Horizontal Black Band

• Description

1. Dark or blurry horizontal stripes occur in the printing periodically. (They may not occur periodically.)

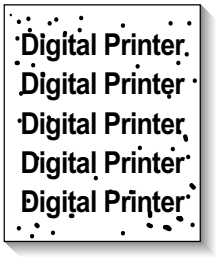


Check and Cause	Solution
1. Bad contacts of the voltage terminals to print cartridge.	1. Clean each voltage terminal of the Charge, Supply, Develop and Transfer roller. (remove the toner particles and paper particles)
2. The rollers of print cartridge may be stained. Charge roller = 38mm Supply roller = 45mm Develop roller = 43mm Transfer roller = 55mm	2. Clean the right Gear that has relatively small gap of the teeth in the OPC. 3. If the malfunction persists, replace the print cartridge.

7.1.4 Black/White Spot

• Description

1. Dark or blurry black spots occur periodically in the printing.
2. White spots occur periodically in the printing.



Check and Cause	Solution
1. If dark or blurry black spots occur periodically, the rollers in the print cartridge may be contaminated with foreign matte or paper particles. (Charge roller : 38 mm interval OPC drum : 95 mm interval)	1. Run OPC cleaning Mode Print and run the Self-test 2 or 3 times.
2. If faded areas or voids occur in a black image at intervals of 95 mm, or black spots occur elsewhere, the OPC drum surface is damaged.	2. In case of 95 mm interval unremovable in 1, cleanly remove foreign substances stuck on the OPC location equivalent to black spots and white spots with a dry duster.
3. If a black image is partially broken, the transfer voltage is abnormal or the transfer roller's life has expired.	3. The transfer roller guarantees 150,000 sheets printing in normal environment. If the roller's life is expired, replace it. 4. In case of 95 mm interval unremovable in 1, take measures as to replace the print cartridge and try to print out. 5. Clean the inside of the set against the paper particles and foreign matter in order not to cause the trouble.

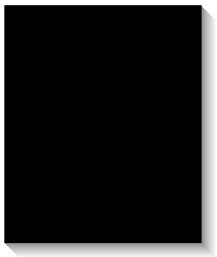
7.1.5 Light Image

• **Description** The printed image is light, with no ghost.

Check and Cause	Solution
1. Develop roller is stained when the toner of print cartridge is almost consumed.	1. Check if the Toner Save mode is off. Check if the density is light.
2. Ambient temperature is below than 10°C.	2. No 1 : Replace the print cartridge and try to print out.
3. Bad contact caused by the toner stains between the high voltage terminal in the HVPS and the one in the set.	3. No 2 : Wait 30 minutes after printer is powered on before you start printing.
4. Abnormal output from the HVPS. (Run self-test and check 1~4)	4. No3 : Clean up the contaminated area by the toner.
5. Check warranty out.	5. Replace the HVPS if the problems are not solved by the above four instructions.
	6. Replace print cartridge.

7.1.6 Dark Image or a Black Page

• **Description** The printed image is dark.



Check and Cause	Solution
1. No charge voltage in the engine board.	1. Check the state of the connector which connects the engine board and HVPS.
2. Charge voltage is not turned on due to the bad contacts between power supply in the side of the print cartridge and charge terminal of HVPS.	2. Clean the high voltage charge terminal.
	3. Replace the HVPS if not solved by the above direction 1 and 2.
3. VD0 signal of the Main PBA is Low state.	4. Replace the LSU Unit or Main PBA.
4. Case back side the cleaning blade of print cartridge.	5. Replace print cartridge.

7.1.7 Uneven Density

• **Description** Print density is uneven between left and right.

Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer

Check and Cause	Solution
1. The pressure force on the left and right springs of the transfer roller is not even, the springs are damaged, the transfer roller is improperly installed, or the transfer roller bushing or holder is damaged.	1. Replace both the left and right Spring Holder.
2. The life of the print cartridge has expired.	2. Occur in the print cartridge gently shake the print cartridge.
3. The toner level is not even on the print cartridge roller due to the bad blade.	3.Replace the print cartridge and try to print out.

7.1.8 Background

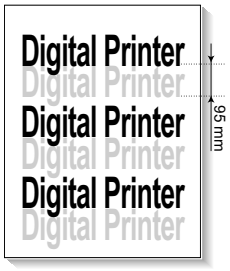
• **Description** Light dark background appears in whole area of the printing.

Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer

Check and Cause	Solution
1. Does character exist less than 2% coverage per a page, and hasn't it been used long time? (see the configuration sheet)	1. The print cartridge is basically designed to print 12,000 pages with 5% coverage. If it prints more than 15,000 pages with 2% coverage, a background can occur.
2. Is a recycled print cartridge be used?	2. The A/S is not guaranteed if using a recyled the print cartridger.
3. Has the life span of the print cartridge ended?	3. Replace the print cartridge when the life span of it has been ended.
4. Is the movement(Up and Down) of the transfer roller smooth?	4. Clean the bushing part of the transfer roller.
5. Is the HVPS normal?	5. If the problem is still not solved, replace the print cartridge.

7.1.9 Ghost (1)

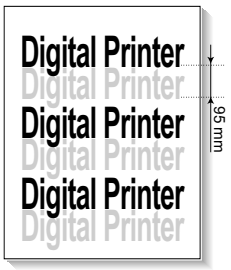
• **Description** Ghost occurs at 95 mm intervals of the OPC drum in the whole printing.



Check and Cause	Solution
1. Bad contacts caused by contamination from toner particles between high voltage terminal in the main body and the electrode of the print cartridge.	1. Clean the terminals when contaminated by toner particles.
2. Bad contacts caused by contamination from toner particles between high voltage terminal in the main body and the one in the HVPS board.	2. Occur in the print cartridge, replace the print cartridge and try to print out.
3. The life of print cartridge is expired.	3. Replace the engine board if not solved by the above directions 1-2.
4. Transfer roller lifetime(150,000 sheets) has expired.	4. If not solved by the direction 3, check the transfer roller lifetime and replace it.
5. Abnormal low temperature(below 10°C).	5. Wait about 1 hour after power on before using printer.
6. Damaged cleaning blade in the print cartridge.	6. Occur in the print cartridge, replace the print cartridge and try to print out.

7.1.10 Ghost (2)

• **Description** Ghost occurs at 95 mm intervals of the OPC drum in the whole printing.
(When printing on card stock or transparencies using manual feeder)



Check and Cause	Solution
When printing on card stock thicker than normal paper or transparencies such as OHP, higher transfer voltage is required.	Select Card stoc or OHP Film on paper type menu from the software application and after using returning to the original mode is recommended.

7.1.11 Ghost (3) : Fuser

• **Description** Ghost occurs at 126 mm intervals.

Check and Cause	Solution
The temperature of the fuser is maintained high.	1. Disassemble the fuser and remove the contaminated toner particles on the roller and clean the foreign matter between Thermistor and Heat roller. (Caution: can be deformed)

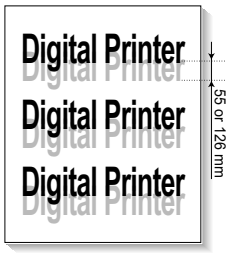
7.1.12 Stains on the Face of Page

• **Description** The background on the face of the printed page is stained.

Check and Cause	Solution
1. Toner leakage due to improperly sealed print cartridge.	1. Replace the print cartridge, and clean to the toner powder of machine.
2. If the transfer roller is contaminated, stains on the face of page will occur.	2. If the transfer roller is contaminated, run OPC Cleaning Mode Print 2 or 3 times. And perform Self-Test 2 or 3 times to remove contamination.

7.1.13 Stains on Back of Page

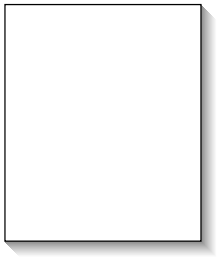
• **Description** The back of the page is stained at 55 or 126 mm intervals.



Check and Cause	Solution
1. 55mm : Transfer roller is contaminated.	1. Perform the OPC Cleaning Mode Print 2 or 3 times. Run Self-Test to remove the contamination of the transfer roller.
2. 126mm : Pressure roller is contaminated.	2. Replace the transfer roller if contaminated severely.
	3. Disassemble the fuser and clean the H/R(Heat Roller) and P/R(Pressure roller). And check the area between H/R and Thermistor. If contaminated, clean the area not to be deformed.

7.1.14 Blank Page Print out (1)

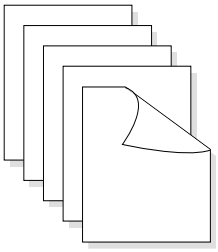
• **Description** Blank page is printed.



Check and Cause	Solution
Bad ground contacts in OPC and/or print cartridge.	1. Check if the Ground-OPC is defective(set inside left side).
	2. Remove contamination of the terminals of the print cartridge and the unit.

7.1.15 Blank Page Print out (2)

• **Description**
1. Blank page is printed.
2. One or several blank pages are printed.
3. When the printer turns on, several blank pages print.



Check and Cause	Solution
1. Bad ground contacts in OPC and/or print cartridge.	1. Remove contamination of the terminals of the print cartridge.
2. Abnormal solenoid.	2. Perform the engine self test using EDC Mode to check if the Solenoid is normal.
	3. If not solved by the above directions 1-2, Replace the engine board.
	4. Turn the power off, delete the data of PC and try printing again.

7.2 The cause and solution of the bad discharge

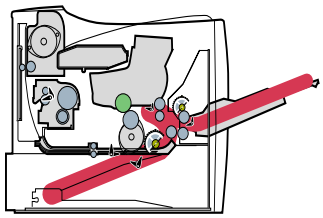
7.2.1 Wrong Print Position

• **Description** Printing begins at wrong position on the paper.

Check and Cause	Solution
Wrong sense time caused by defective feed sensor actuator.	Replace the defective actuator

7.2.2 JAM 0

• **Description**
1. Paper is not exited from the cassette.
2. Jam-0 occurs if the paper feeds into the printer.

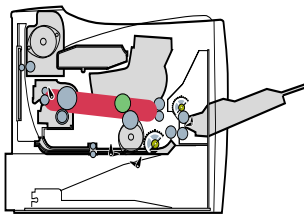


Check and Cause	Solution
1. Check the Main clutch by using EDC Mode.	1. Replace the Main clutch.
2. Check if the pad is loose due to bad sealing of the side-pad.	2. Replace the side-pad Assembly L or R, if necessary.
3. Check the surface of the roller-pick-up for foreign matter.	3. Clean with soft cloth dampened with IPA(Isopropyl Alcohol) or water.
4. If continuous clusters occur, check whether the assembly slot between shaft-pickup and housing-pickup opens or is broken away.	4. Replace the Main PBA and/or Sensor.
5. If the paper feeds into the printer and Jam 0 occurs, perform EDC Mode to check feed-sensor of the engine board.	

7.2.3 JAM 1

• Description

1. Recording paper is jammed in front of or inside the fuser.
2. Recording paper is stuck in the discharge roller and in the fuser just after passing through the Actuator-Feed.

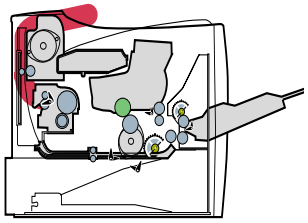


Check and Cause	Solution
1. If the recording paper is jammed in front of or inside the fuser.	1. Replace the SMPS or Exit-Sensor. 2. Replace the Main PBA.
2. If the recording paper is stuck in the discharge roller and the fuser just after passing through the Actuator-Feed, Feed Actuator may be defective.	3. Reassemble the Actuator-Feed and Spring-Actuator if the movement is bad.

7.2.4 JAM 2

• Description

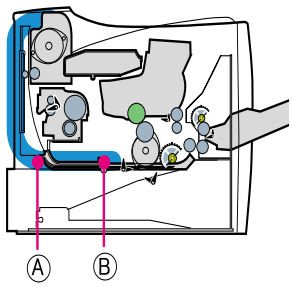
1. Recording paper is jammed in front of or inside the fuser.
2. Recording paper is stuck in the discharge roller and in the fuser just after passing through the Actuator-Feed.



Check and Cause	Solution
1. If the paper is completely fed out of the printer, but Jam 2 occurs : Exit sensor is defective. • After the paper is completely discharged, actuator Exit should return to the original position to shut the photo-sensor. Sometimes it takes longer hour than it should and does not return.	1. Check if the exit sensor actuator is defective. • Check if the actuator exit is deformed (Check if the lever part is deformed in shape). • Check whether burrs occur in the assembly part of the actuator exit or not and if the actuator is smoothly operated. • Check if foreign matter and wire get caught in the actuator exit's operation.
2. If the paper is rolled in the Fuser Roller: • This occurs when a Guide claw is broken away or transformed. • It occurs when the Spring of a Guide claw is broken away or transformed. • It occurs when the Heat-Roller or Pressure-Roller is seriously contaminated with the toner.	2. If the paper is stuck in the fuser : disassemble the fuser and remove the jammed paper, and clean the surface of the pressure roller with dry gauze.
3. Paper is accordion in the fuser.	3. Remove the jammed paper after disassembling the fuser : Clean the surface of the pressure roller with dry gauze. • Remove the toner particles stained on the rib. • Check the assemblage and performance of the exit.

7.2.5 Duplex Jam 1

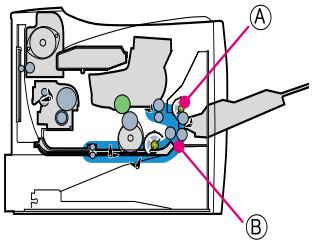
• **Description** A message 'Duplex Jam 1' is displayed in a LCD window.



Check and Cause	Solution
1. It is a case when a paper cannot operate a duplex sensor.	1. Replace a SMPS or main PBA
2. It is a case when a paper cannot reach to a duplex sensor due to a paper jam on a duplex path.	2. A case that a paper jam occurs on (A) after it is reversed: replace a 2nd exit roller after checking its operation. 3. A case that a paper jam occurs on (B) after it is reversed: replace a duplex roller after checking its operation

7.2.6 Duplex Jam 2

• **Description** A message 'Duplex Jam 2' is displayed in a LCD window.



Check and Cause	Solution
1. It is a case that a paper cannot pass a duplex sensor.	1. Replace a SMPS or main PBA.
2. It is a case that a paper cannot reach to a registration sensor after it is passed a duplex sensor.	2. A case that a leading edge of a paper is jammed on (A) check an operation of a guide front. If it is worn or defective, replace it. 3. Check an operation of a feed roller and a registration roller. If they are worn or defective replace them.

7.2.7 Multi-Feeding

• **Description** Multiple sheets of paper are fed at once.

Check and Cause	Solution
1. Check the Guide side L/R or Guide Rear in the Cassette, if the position is correct.	1. Replace the solenoid if necessary.
2. Solenoid malfunction(the solenoid does not work properly): Perform EDC Mode.	2. Replace the Main PBA.
3. Pad-Friction is contaminated with foreign matter.(oil...)	3. Clean the pad friction with soft cloth dampened with IPA(Isopropyl Alcohol).
4. The face of paper is blended.	4. Use the smooth paper.

7.2.8 Paper rolled in the fuser

• **Description** If contaminated at intervals of 57mm on the back of a paper.

Check and Cause	Solution
1. Contamination of the pressure roller or heat roller (Background, Hot off set).	1. After disassembling the fuser, clean contamination between the heat roller and the thermostor and remove the contamination of the pressure roller.
2. Check the claw of the fuser whether it is deformed.	2. If there is heavy background, repair it by the background troubleshooting method.
	3. Clean the surface of the heat roller with IPA or water
	4. Check the warp or separation of the print claw and the holder plate claw, and then manage it.

7.2.9 Paper rolled on the OPC Drum

• **Description** Paper is rolled up in the OPC.

Check and Cause	Solution
1. Paper is too much thin. 2. The face of paper is curled.	1. Recommend to use normal paper. 2. How to remove the rolled paper in the OPC. • Remove the paper while turning the OPC against the ongoing direction. • Clean fingerprints on the OPC softly with soft cloth dampened with tissue.

7.3 The cause and solution of the malfunction

7.3.1 Fuser Error

• **Description**	A message “Engine Fuser Low Heat Error/Engine Fuser Over Heat Error” is displayed in a LCD panel.

Check and Cause	Solution
1. Check whether a thermostat, open or not.	1. Replace the fuser if a thermostat is open.
2. Check whether a thermistor is open or not.	2. Replace the fuser if a thermistor sensor is located deep inside of a sponge.
3. Heat lamp ON/OFF test	3. Check whether the overheat mode circuit operates normally or not.
4. It could not operate due to a gear of a fuser is melted.	4. Replace the fuser.

7.3.2 LSU Error

• **Description**	A message “Engine Hsyne Error” is displayed in a LCD panel.

Check and Cause	Solution
1. Check whether the LSU connector is disconnected or not.	1. Connect the LSU harness properly.
2. Check whether the LSU motor is rotating or not.	2. Replace a LSU.
3. Check the HSYNC signal.	3. Replace a main board if the same error occurs again after replacing a LSU.

7.3.3 Not function of the gear of the fuser due to melting away

• **Description** The motor breaks away from its place due to gear melting away.

Check and Cause	Solution
1. Check the Fuser Unit.	1. Replace the Fuser. 2. Replace the Main PBA. 2. Replace the SMPS.

7.3.4 Paper Empty

• **Description** The paper lamp on the operator panel is on even when paper is loaded in the cassette.

Check and Cause	Solution
1. Bending or deformation of the actuator of the paper sensor. 2. The function of the engine board is defective 3. Check the connector and harness.	1. Replace the defective actuator. 2. Replace the empty sensor PBA.

7.3.5 Paper Empty without indication

• **Description**	A message “Paper Empty” is displayed in a LCD panel. The paper lamp on the operator panel does not come on when the paper cassette is empty.

Check and Cause	Solution
1. Bending or deformation of the actuator of the paper sensor.	1. Replace the defective actuator.
2. Check the Main board.	2. Replace the board which has a trouble.
3. Check the empty sensor board.	
4. Check the toner sensor board.	

7.3.6 Cover Open

• **Description**	A message “Colse Top Cover” is displayed in a LCD panel. The ERROR lamp is on even when the print cover is closed.

Check and Cause	Solution
1. The hook lever in the top cover may be defective.	1. Replace the hook lever, if defective.
2. Check the main board	2. Check the insertion of the cover open S/W connect.
3. Check the cover open board.	3. Replace the main board or cover open board.
4. Check the harness and connection.	

7.3.7 No error message when the cover is open

• **Description** The ERROR message does not come on even when the printer cover is open

Check and Cause	Solution
1. Check the cover open circuit on the main board. 2. Check the cover open board.	1. Check the insertion of the cover open S/W connect. 2. Replace the main control board or cover open board.

7.3.8 Defective motor operation

• **Description** Main motor is not driving when printing, and paper does not feed into the printer, resulting 'Jam 0'.

Check and Cause	Solution
1. The motor harness or motor PCB may be defective.	1. Replace the motor unit.
2. Check the motor operation in the EDC mode.	2. Replace the main PBA.

7.3.9 No Power

• **Description** When system power is turned on, all lamps on the operator panel do not come on.

Check and Cause	Solution
1. Check if the power input and SMPS output are normal.	1. Replace the SMPS.
2. Check the inferiority of LED-Panel or LDC window on the front-cover if the OP panel does not appear after normal warming-up.	2. Replace the control board.

7.3.10 Vertical Line Getting Curved

• **Description** When printing, vertical line gets curved.

Check and Cause	Solution
1. If the supply of +24v is unstable in the main control board linking with LSU, check drive by EDC mode: LSU check.	1. Replace LSU.
2. Chect the deve PBA in the print cartridge.	2. Replace the toner sensor PBA. 2. Replace the main PBA.

7.4 Print Cartridge Service

It is not guaranteed for the default caused by using other print cartridge other than the cartridge supplied by the Samsung Electronic or caused by non-licensed refill production.

7.4.1 Precautions on Safe-keeping of Print Cartridge

Excessive exposure to direct light more than a few minutes may cause damage to the cartridge.

7.4.2 Service for the Life of Print Cartridge

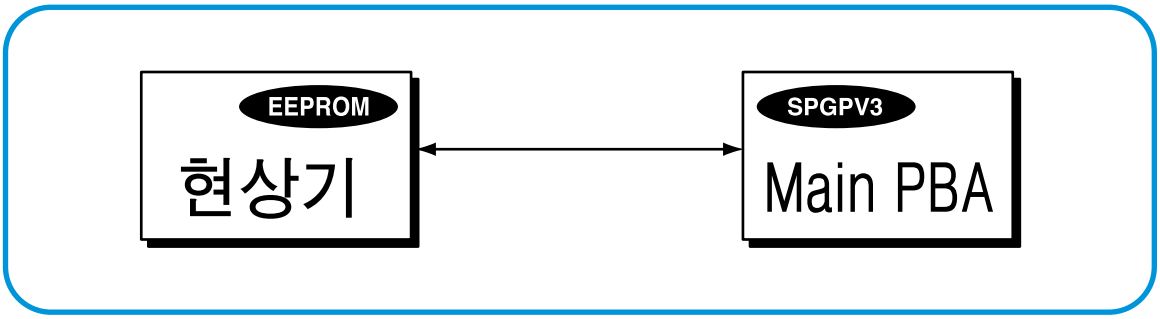
If the printed image is light due to the life of the toner, you can temporarily improve the print quality by redistributing the toner(Shake the print cartridge), however, you should replace the print cartridge to solve the problem thoroughly.

7.4.3 Distinguish function for choice cartridge

• Distinguish function for choice cartridge

An EEP ROM is mounted to a cartridge for distinguishing a choice print cartridge. Items written in below are detected by checking up memory information.
If the data of the EEP ROM is broken, it cannot be detected.

1) Detecting existence of a print cartridge: It detects whether a print cartridge is mounted or not.
2) Detecting a serial number of a print cartridge.
3) Detecting a print cartridge supplying company: If it is not Samsung's, it is not operated.
4) Detecting an OPC rotating counter: It detects the life span of an OPC drum.



• Distinguish a refilled cartridge. (with eyes)

1) Check the cartridge on configuration sheet(Print out the self-test configuration)
: Manufacture date and serial number of print cartridge are different(permissible range : +/- 1).

7.4.4 Error message (LCD window) related in a toner sensor

It explains a message related in toner sensor in a LCD.

7.4.4.1 Invalid Toner

- Contents: It is displayed when a supplier is different between a print cartridge and a set. If this message is shown up, a printing process cannot operate.
- Solution: Attach a suitable print cartridge (the same supplier's) to a set. (A unique key has been applied.)

7.4.4.2 Low Toner

- Contents: This message shows up when a message "Life remaining: 10%" is displayed in a cartridge count information. And the same message shows up when an OPC cycle 162,000 becomes.
- Solution: It means that a toner in the print cartridge has been almost ended. Repare the new print cartridge.

7.4.4.3 Replace Cartridge

- Contents: This message shows up when an OPC cycle becomes 183,600. It means the life span of a print cartridge (except a toner part) has been ended. Even though a case that a toner is refilled, the rest of major parts have been ended, so entire print cartridge might be replaced, and cannot print in the future.
- Solution: If an OPC rotates about 183,600 cycle, in a worst case, a toner overflows and it may cause a system fail. Therefore, recommend a user to replace a print cartridge.

7.4.5 Signs and Measures at Poor print cartridge

Fault	Signs	Cause & Check	Solution
Light image and partially blank image (The life is ended.) 	• The printed image is light or unclean and untidy. • Some part of the image is not printed. • Periodically a noise as "tick tick" occurs.	1. If the image is light or unclean and untidy printed image - Shake the print cartridge and then recheck. (1)NG: Check the weight of the print cartridge (2)OK: Lack of toner, so the life is nearly closed. 2. Some part of image is not printed - Shake the print cartridge and then recheck. (1)NG: Check the weight of the print cartridge and clean the LSU window with a cotton swab, then recheck. (2)OK: Lack of toner, so the life is nearly closed. 3. Periodically a noise as "tick tick" occurs - Measure the cycle and the weight of the print cartridge. 4. White vertical stripes on the whole screen or partly : Check the weight of the print cartridge.	1. All of 1, 2, 3 above- If it become better by shaking, replace with a new print cartridge after 50-100 sheets in the closing state of the life span. 2. In case of 2- If it becomes better after cleaning the LSU window, then the print cartridge is normal. (Because of foreign substance on the LSU window, the image has not been printed partly.) 3. In case of 3- If the cycle of noise is about 2 seconds, the toner inside the print cartridge has been nearly exhausted. (Purchase and replace with a new print cartridge after using about 200 sheets at the point of occurrence) 4. In case of 3- This is a phenomenon caused by lack of toner, so replace with a new print cartridge.
Toner Contamination	• Toner is fallen on the papers periodically. • Contaminated with toner on prints partly or over the whole surface.	1. Toner is fallen on the paper periodically. (1)Check the cycle of the falling of the toner. (2)Check the appearance of both ends of the print cartridge OPC drum. 2.The center of the printed matter is contaminated with toner. (1)Check whether foreign substances or toner are stuck to the terminal (contact point) of the print cartridge. (2)Check whether the state of the terminal assembly is normal.	1. If both ends of the OPC drum are contaminated with toner: Check the life of the print cartridge. 2. Check whether it could be recycled. 3. If it cannot be recycled: Replace the print cartridge.

Fault	Signs	Cause & Check	Solution
White Black spot  	• Light or dark black dots on the image occur periodically. • White spots occur in the image periodically.	1. If light or dark periodical black dots occur, this is because the print cartridge rollers are contaminated with foreign substance or paper particles. (1)38mm interval : Charged roller (2)95mm interval : OPC cycle 2. If white spots occur in a black image at intervals of 95mm, or black spots occur elsewhere, the OPC drum is damaged or foreign substance is stuck to the surface. 3. If a black and white or graphic image is partially broken at irregular intervals, the transfer roller's life has been expired or the transfer voltage is abnormal.	1. In case of 1 above - Run OPC Cleaning Mode Print 4-5 times repeatedly to remove. Especially check foreign substance on the OPC surface, then remove them with a clean gauze moistened with IPA(Isopropyl Alcohol) not to damage OPC if necessary. ⚠ **Never use usual alcohol.** 2. In case of 2 If they are not disappeared by running OPC Cleaning Mode Print 4-5 times. : at intervals of 38mm - Replace the print cartridge. : at intervals of 95mm - Remove foreign substance. : Broken image - Replace the print cartridge according to carelessness. 3. In case of 3 - Exchange the transfer roller because the life of the transfer roller in use has been expired. (Check the transfer voltage and readjust if different.)
Recycled product	• Poor appearance of the print cartridge. • Unclean and rough printouts. • Bad background in the image.	1. Poor appearance of the print cartridge. (1)Check the damage to label and whether different materials are used. (2)Check the appearance of parts of the print cartridge, such as frame, hopper. 2. Unclean and rough printouts. (1)Check whether foreign substance or toner are stuck to the terminal (contact point) of the print cartridge. (2)Check whether the state of the terminal assembly is normal.	1. In case of 1 - (1)If there is an evidence of disassembling the print cartridge. (2)If materials other than normal parts of the print cartridge are added or substituted. 2. In case of 2 - If there are any abnormals in connection with the situation of 1. (1)It occurs when the print cartridge is recycled over 2 times. (2)If toner nearly being expired are collected to use, it is judged as the recycled print cartridge.

Fault	Signs	Cause & Check	Solution
Ghost & Image Contamination	• The printed image is too light or dark, or partially contaminated black. • Totally contaminatedblack. (Black image printed out) • The density of printouts is too dark and ghost occurs.	1. The printed image is too light or dark, or partially contaminated black. (1)Check whether foreign substance or toner are stuck to the terminal(point of contact) of the print cartridge. (2)Check whether the terminal assembly is normal.	1. All of 1, 2, 3 above (1)Remove toner and foreign substances adhered to the contact point of the print cartridge. (2)The contact point of the unit facing that of the print cartridge also must be cleaned. (3)If the terminal assembly is unsafe: • Fully stick the terminal to or reassemble it after disassembling. • Disassemble the side plate and push the terminal to be stuck, then reassemble it.
		2. Totally contaminated black. (Black image printed out) (1)Check whether foreign substances are stuck to the terminal(point of contact) of the print cartridge and the state of assembly. (Especially check the charged roller terminal.)	2. In case of 2 It is a phenomenon when the OPC drum of the print cartridge is not electrically charged. Clean the terminals of the charged roller, then recheck it.
		3. The printed image is dark and ghost occurs. (1)Check foreign substance attached to the terminal (point of contact) of the print cartridge and the state of assembly. (Especially check the developing roller terminal.)	3. In case of 3 It is a phenomenon as the developing bias voltage of the print cartridge. Clean the terminals of the developing roller, then recheck it.

7.5 The cause and solutions of bad environment of the software

7.5.1 The printer is not working (1)

• **Description** While Power turned on, the printer is not working in the printing mode.

Check and Cause	Solution
1. Run Self-Test Mode: Turn the power on while pressing the test printing button for 2 or 3 seconds before printing works.	1.Check the power of the printer and perform the Self-Test. If the test printing works, that means no problems in the printer itself. If the test printing does not work, that means bad functioning of the printer(not because of software).
2. Check if the PC and the printer is properly connected and the print cartridge installed.	2. Replace the printer cable. If the problems not solved even after the cable replaced, check the amount of the remaining tone. (refer to print cartridge Service 4-5)
3. Printing is nor working in the Windows.	3. Check if the connection between PC and printer port is proper. If you use windows, check if the printer driver in the controller is set up. If the printer driver is properly set up, check in which program the printing is not working. The best way to find out is to open the memo pad to check the function of printing. If it is not working in a certain program, adjust the setup the program requires. Sometimes, the printout is normal within the Windows basic programs, but it's not working in a particular program. In such case, install the new driver again. If not working in the Windows basic program, Check the setup of the port of CMOS is on ECP. And check the address of IRQ 7 and 378
4. Check if the printer cable is directly connected to peripheral devices	4. If the scanner needs to be connected to the printer, first the remove the scanner from the PC to see if the printer is properly working alone.

7.5.2 The printer is not working (2)

• Description After receiving the printing order, no response at all or the low speed of printing occurs due to wrong setup of the environment rather than malfunction of the printer itself.

Check and Cause	Solution
1. Secure more space of the hard disk.	1. Not working with the message 'insufficient printer memory' means hard disk space problem rather than the RAM problem. In this case, provide more space for the hard disk. Secure more space using the disk utilities program.
2. Printing error occurs even if there is enough space in the hard disk.	2. The connection of the cable and printer port is not proper. Check if the connection is properly done and if the parallel port in CMOS is rightly set up.
3. Check the parallel-port-related items in the CMOS Setup.	3. As a printer port, Select ECP or SPP among SPP(Normal), ECP, and EPP modes(increase printing speed) SPP normal mode support 8-bit data transfer, while ECP Mode transfer the 12-bit data.
4. Reboot the system to print.	4. If the regular font is not printing, the cable or the printer driver may be defective. Turn the PC and printer off, and reboot the system to print again. If not solved, double-click the printer in my computer If the regular fonts are not printed this time again. the cable must be defective so replace the cable with new one.

7.5.3 Abnormal Printing

• **Description**	The printing is not working properly even when the cable has no problem. (even after the cable is replaced) If the printer won't work at all or the strange fonts are repeated, the printer driver may be defective or wrong setup in the CMOS Setup.

Check and Cause	Solution
1. Set up the parallel port in the CMOS SETUP.	1. Select SPP(Normal) or ECP LPT Port the among ECP, EPP or SPP in the CMOS Setup.
2. Printer Driver Error.	2. Check the printer in My Computer.(to see if the printer driver is compatible to the present driver or delete the old driver, if defective and reinstall the new driver)
3. Error message from insufficient memory. (The printing job sometimes stops or due to insufficient virtual memory, but it actually comes from the insufficient space of the hard disk.)	3. Delete the unnecessary files to secure enough space of the hard disk and start printing job again.

7.5.4 SPOOL Error

• **Description**	To spool which stands for "simultaneous peripheral operations online" a computer document or task list (or "job") is to read it in and store it, usually on a hard disk or larger storage medium so that it can be printed or otherwise processed at a more convenient time (for example, when a printer is finished printing its current document).

Check and Cause	Solution
1. Insufficient space of the hard disk in the directory assigned for the basic spool.	1. Delete the unnecessary files to provide more space to start printing job.
2. If the previous printing error not solved.	2. If there are some files with the extension name of ****.jnl, Delete them and Reboot the Windows to restart printing job.
3. When expected to collide with other program.	3. Shut down all other programs except the current one, if possible.
4. When an application program or the printer driver is damaged.	4. Delete the printer driver completely and reinstall it.
5. When some files related to OS are damaged or virus infected.	5 After rebooting the computer, check for viruses, restore the damaged files and reinstall the program to do the printing job.
6. Memory is less than suggested one.	6. Add up enough memory to the PC.

How to delete the data in the spool manager.

In the spool manager, the installed drivers and the list of the documents waiting to be printed are shown. Select the document to be deleted and check the delete menu.

If you intend to delete the current document being printed, the data being transferred to the printer will be put out and then the document is removed. Before choosing the document, the menu is still inactive.

Or put the document out of the list and repeat the routine as in the above or finish the spool manager.

8. Exploded Views and Parts List(ML-3561N/XAA)

Contents

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8.2 Cover Assembly p.8-3
8.3 Frame Assembly p.8-4
8.4 Fuser Unit p.8-6
8.5 REGI Assembly p.8-7
8.6 Main Motor Assembly p.8-8
8.7 Deve Motor Assembly p.8-9
8.8 Exit Sorenoid Assembly p.8-10
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8.10 SCF Unit p.8-12
8.11 Duplex Unit p.8-13

Part Number & Description format.

Part numbers and descriptions are defined according to a company standard. The information below will help you to understand the part number format and assist when ordering spare parts.

• **There are two types of Part number format.**

●●●●–●●●●●	ex) 2007-007961	R-CHIP
■■●●–●●●●■ (└ It shows part specific)	ex) JB96-01268A	ELA UNIT-COVER TOP

(● : number ■ : letter)

Type 1 : This format is used throughout Samsung on all product ranges. Typically it is used for small components and electronic parts.

Type 2 : This format is controlled by individual Samsung Divisions and is used on specific products, typically for mechanical parts. Type 2 format part numbers fall into 2 categories:

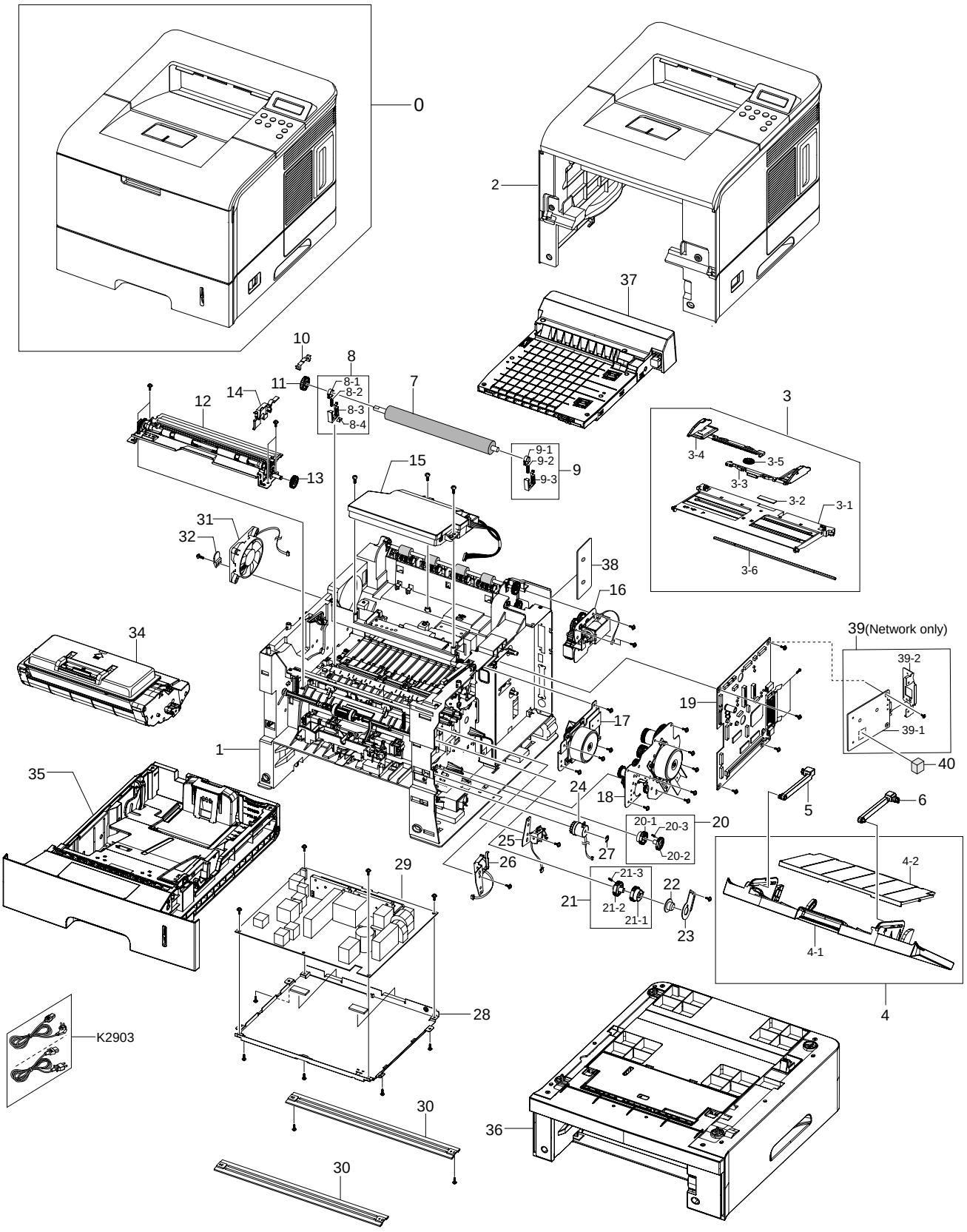
• **A/S privately used part :** It is only used for A/S .

• **Ass'y part :** Assemblies consisting of 2 or more parts. Also used for Service manuals, user guides and diagrams.

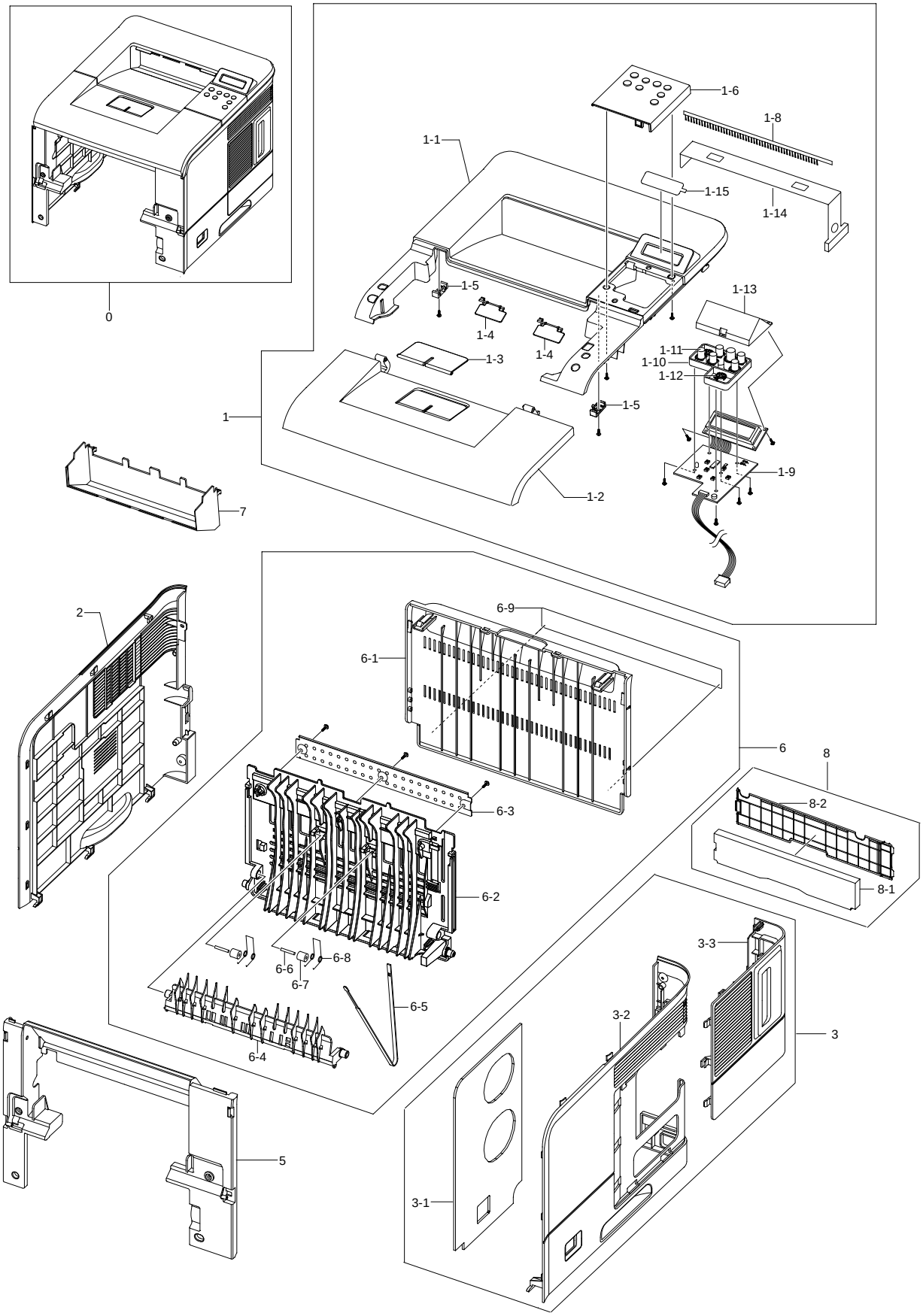
• Ass'y parts and A/S privately used Parts can be distinguished by the part Code and Description. They are always Type 2 format. The 2 leading characters indicate private or assembly parts.

DIVISION	PART CODE	DESCRIPTION
A/S Private	**81-****** (JB81-00039A)	AS-********** (AS-USE)
ASS'Y Part	**75-****** (JB75-00068A)	MEC-******** (MEC-CHUTE)
ASS'Y Part	**92-****** (JB92-01131A)	PBA ********* (PBA MAIN-CONTROLLER)
ASS'Y Part	**97-****** (JB97-01089A)	MEA ********* (MEA UNIT-PULLEY IDLE)

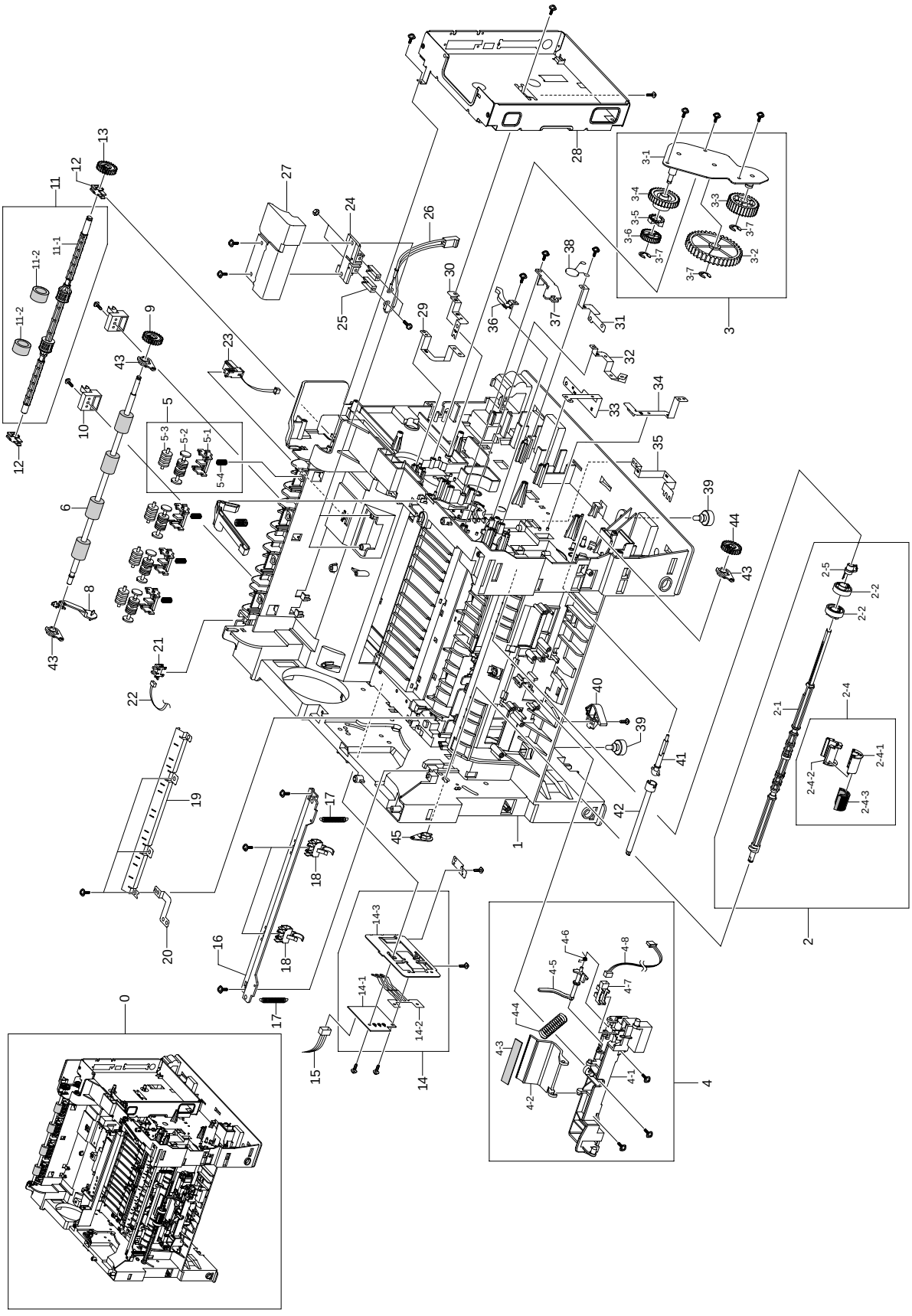
8.1 Main Assembly



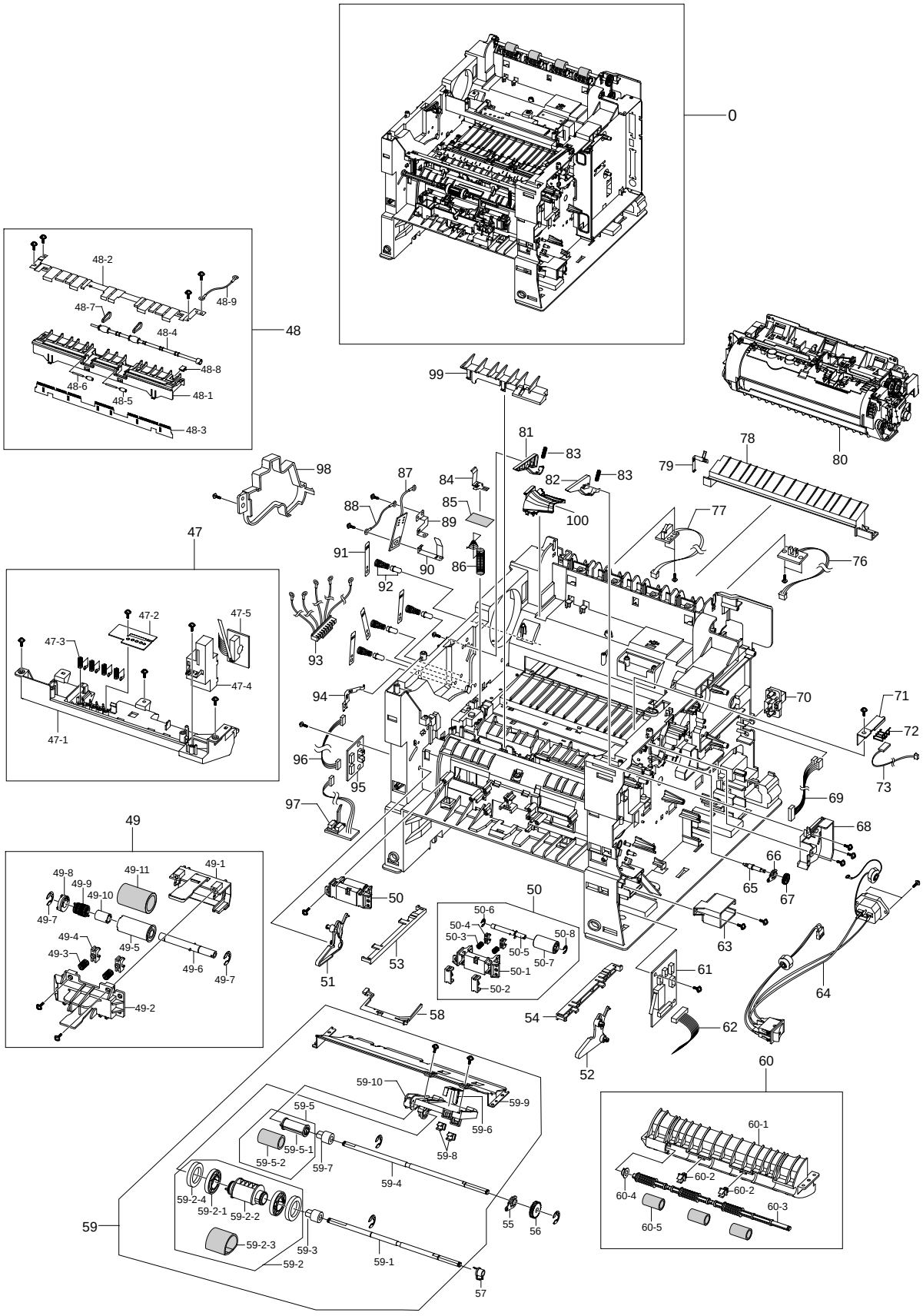
8.2 Cover Assembly



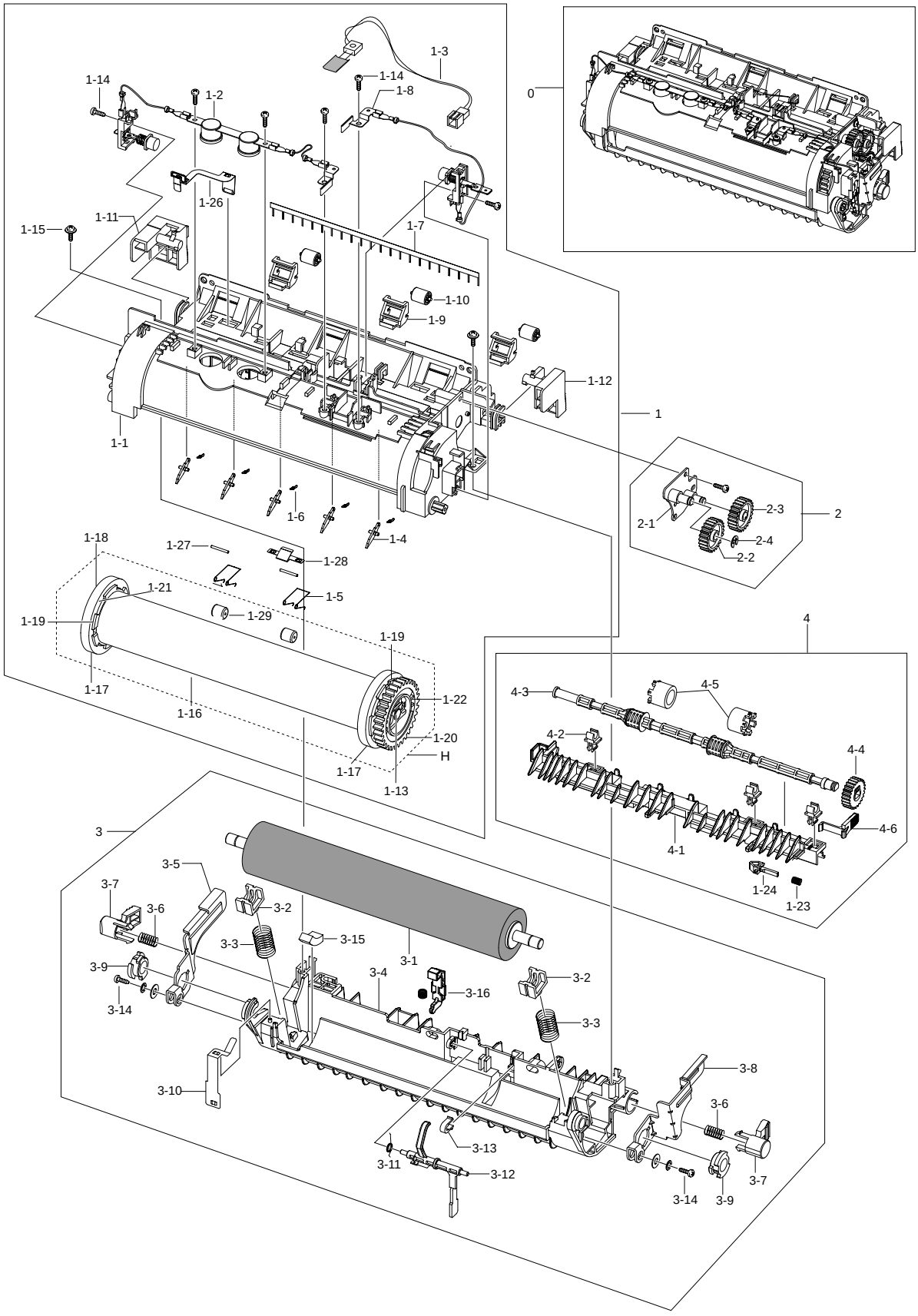
8.3 Frame Assembly(1/2)



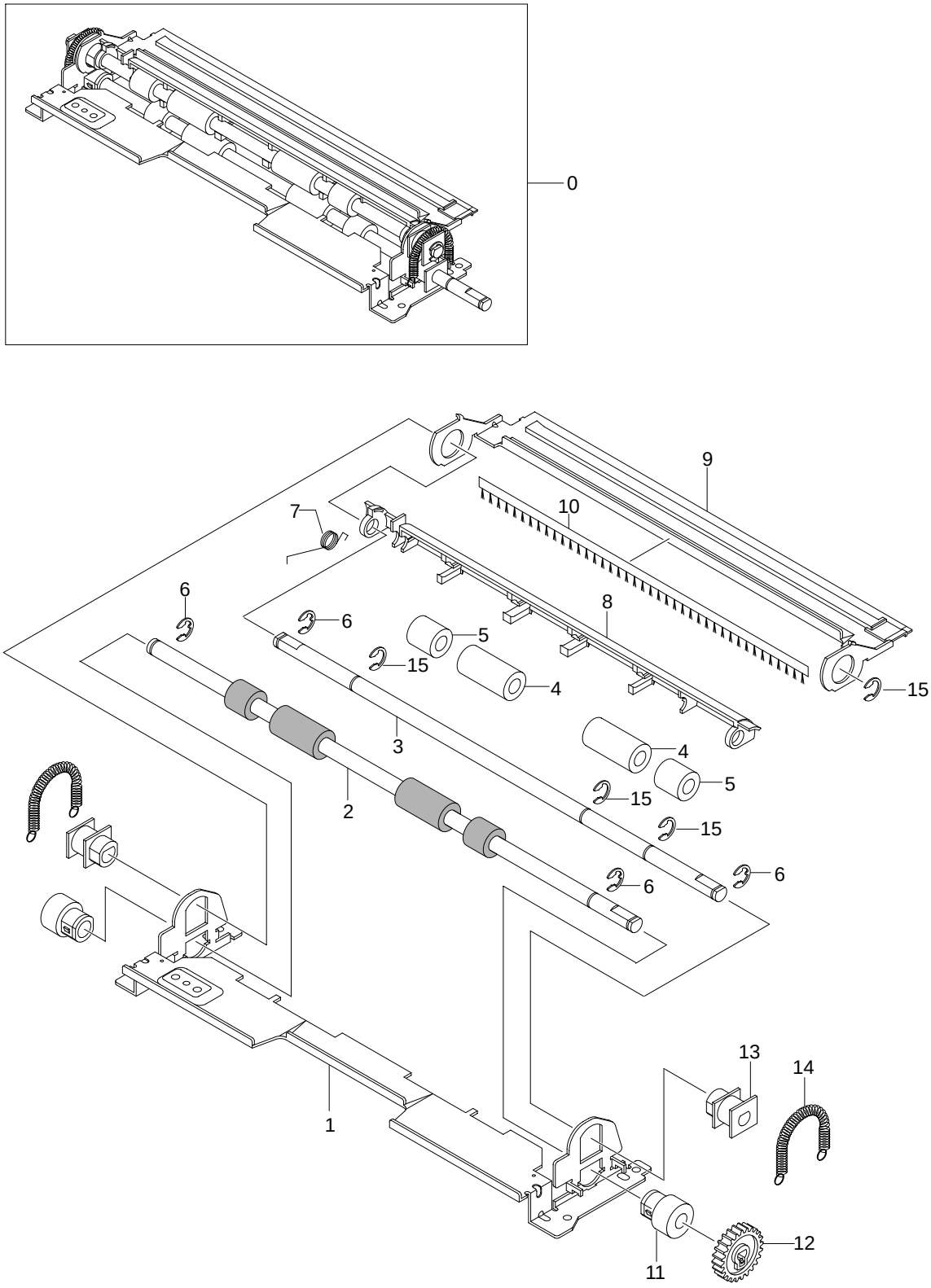
Frame Assembly(2/2)



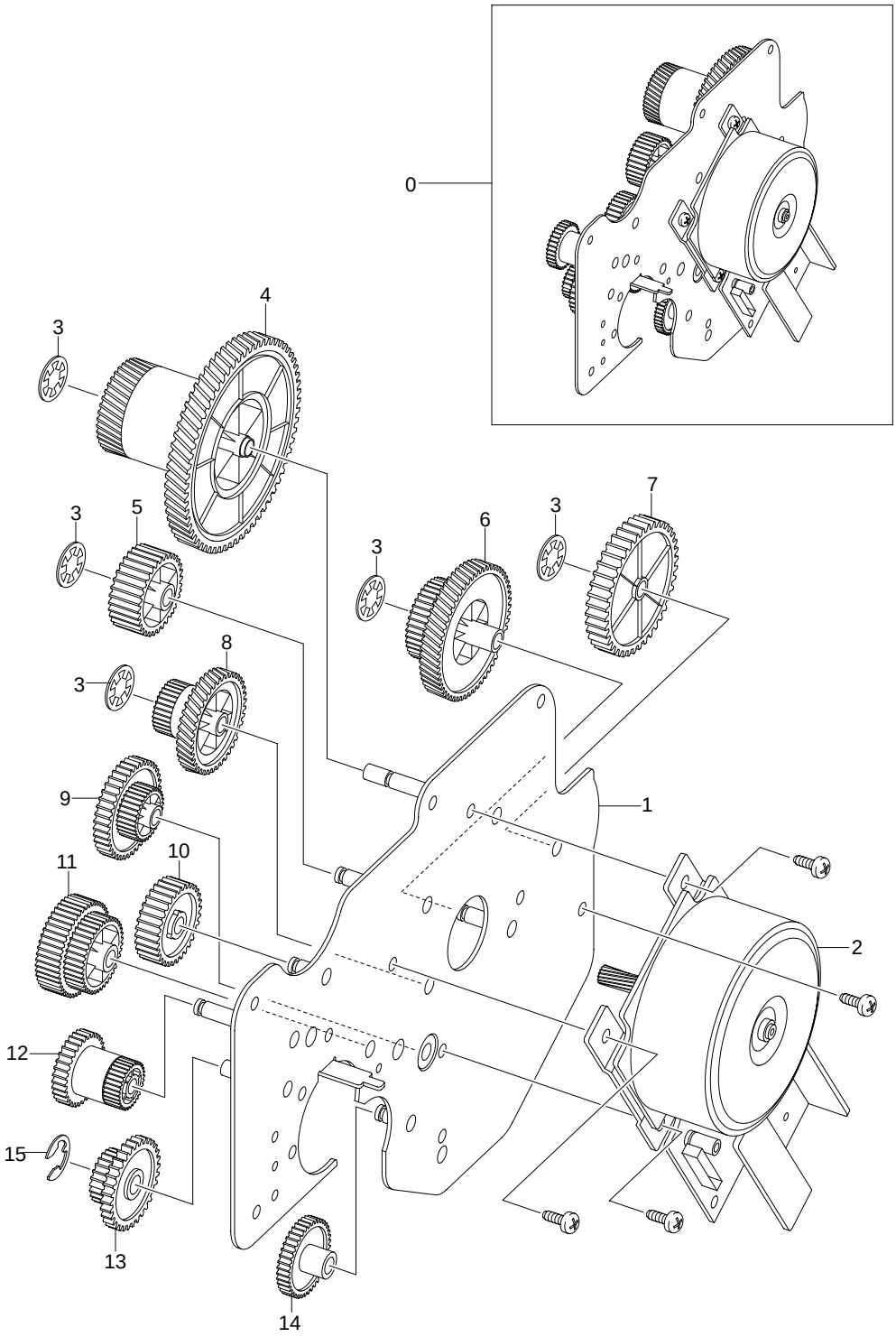
8.4 Fuser Unit



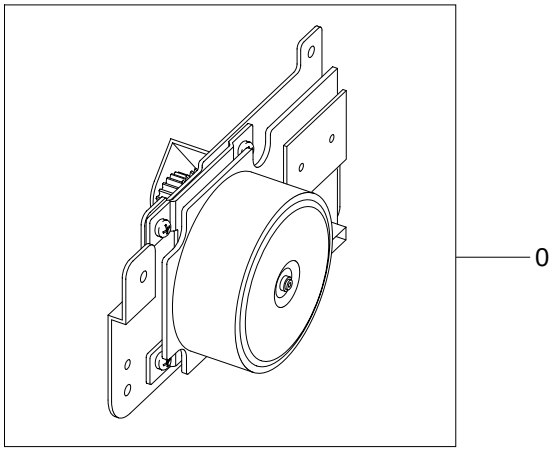
8.5 REGI Assembly

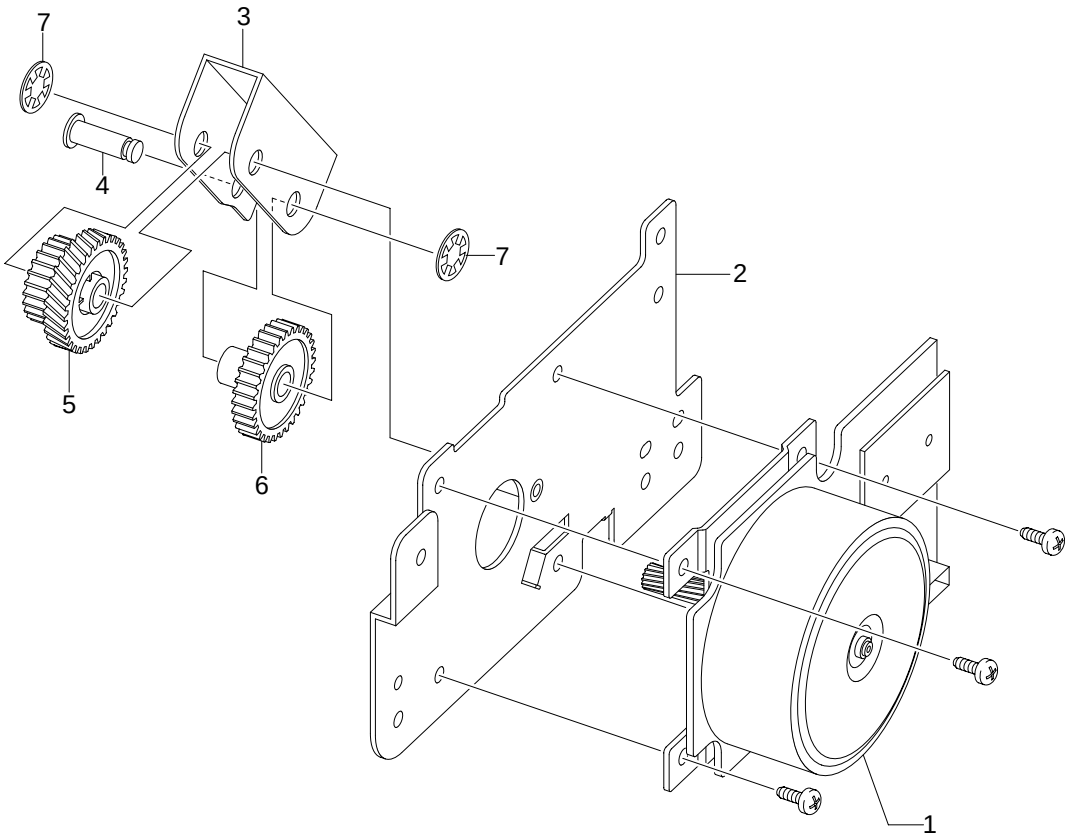


8.6 Main Motor Assembly

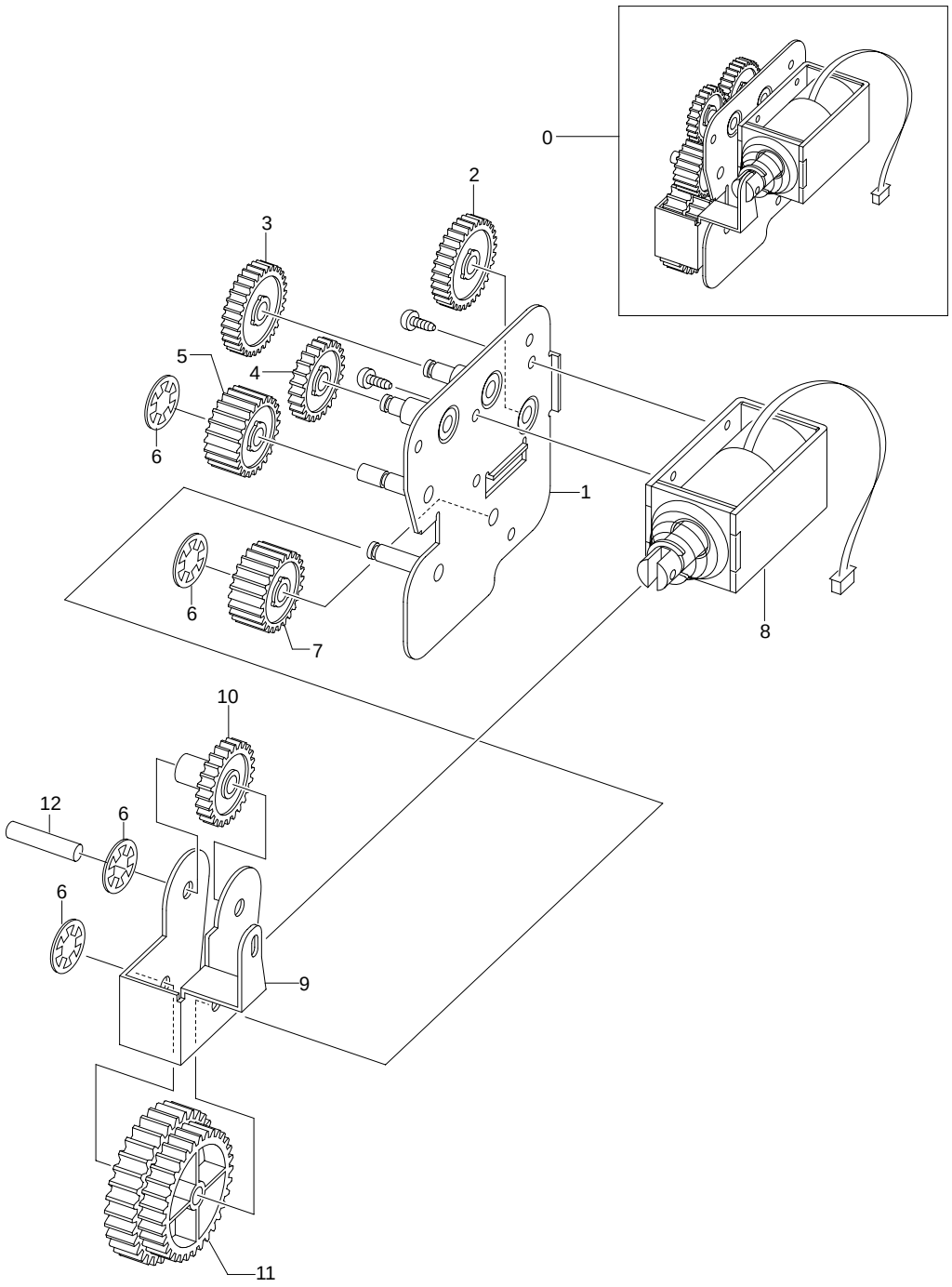


8.7 Deve Motor Assembly

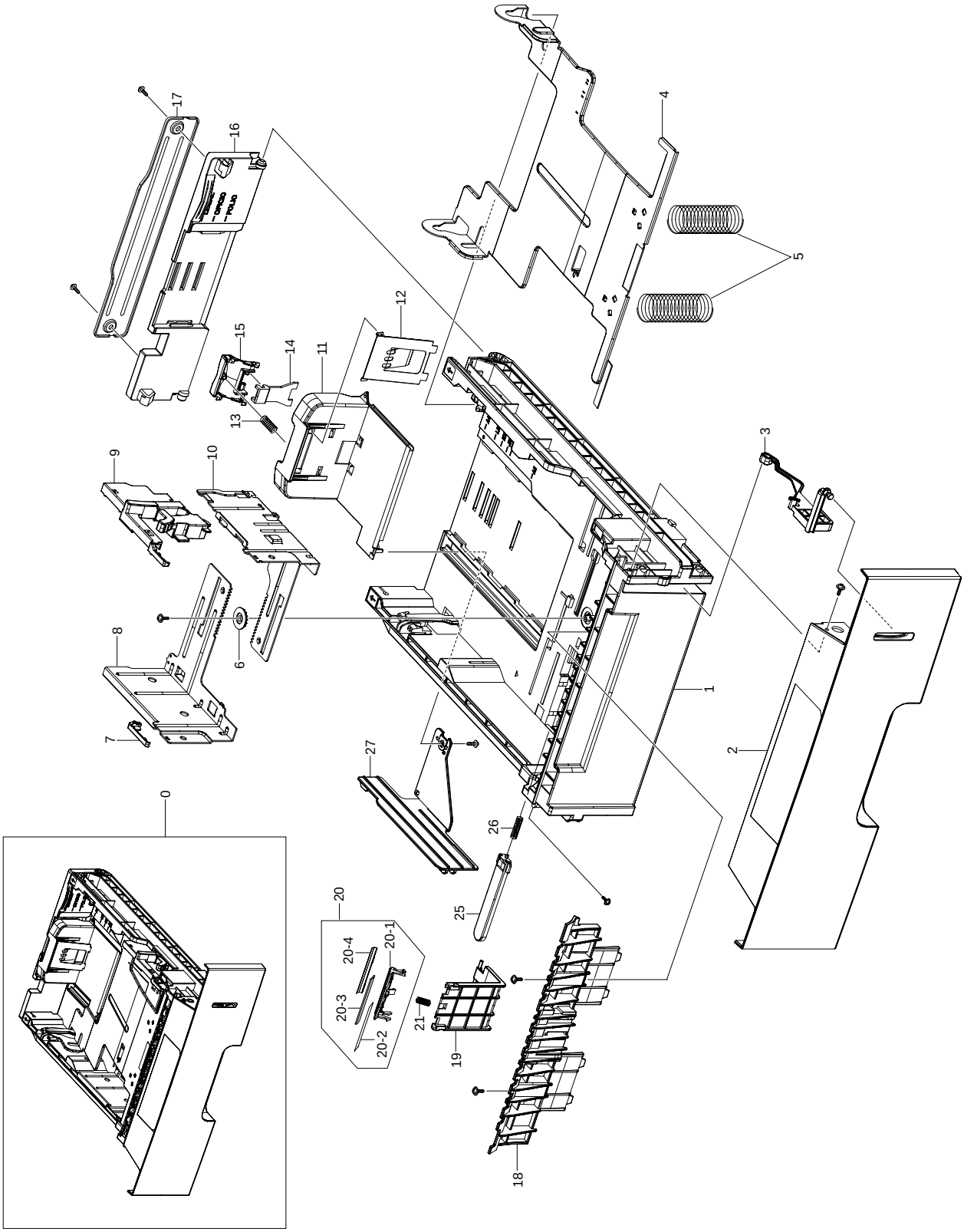




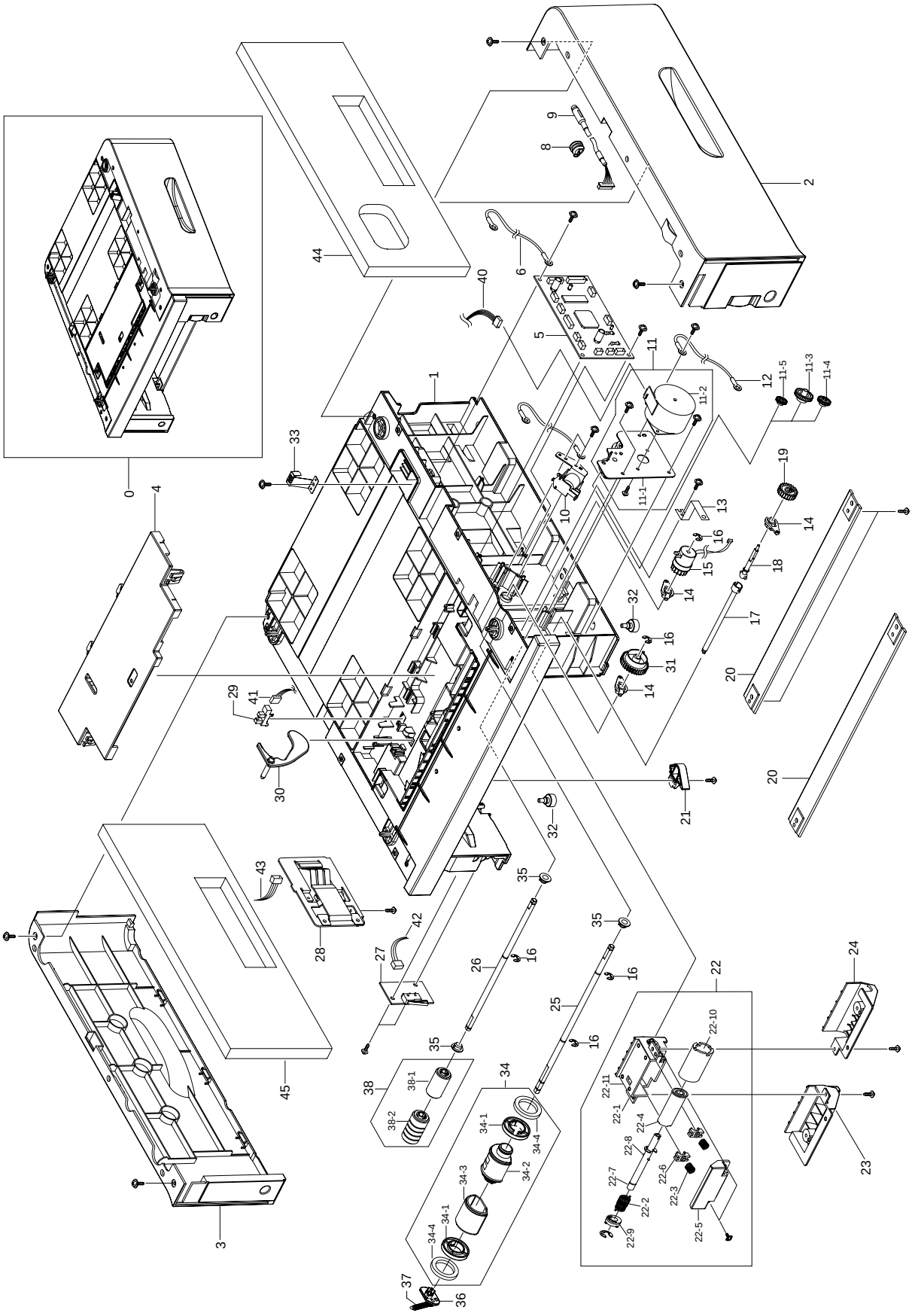
8.8 Duplex Sorenoid Assembly



8.9 Cassette Assembly



8.10 SCF Unit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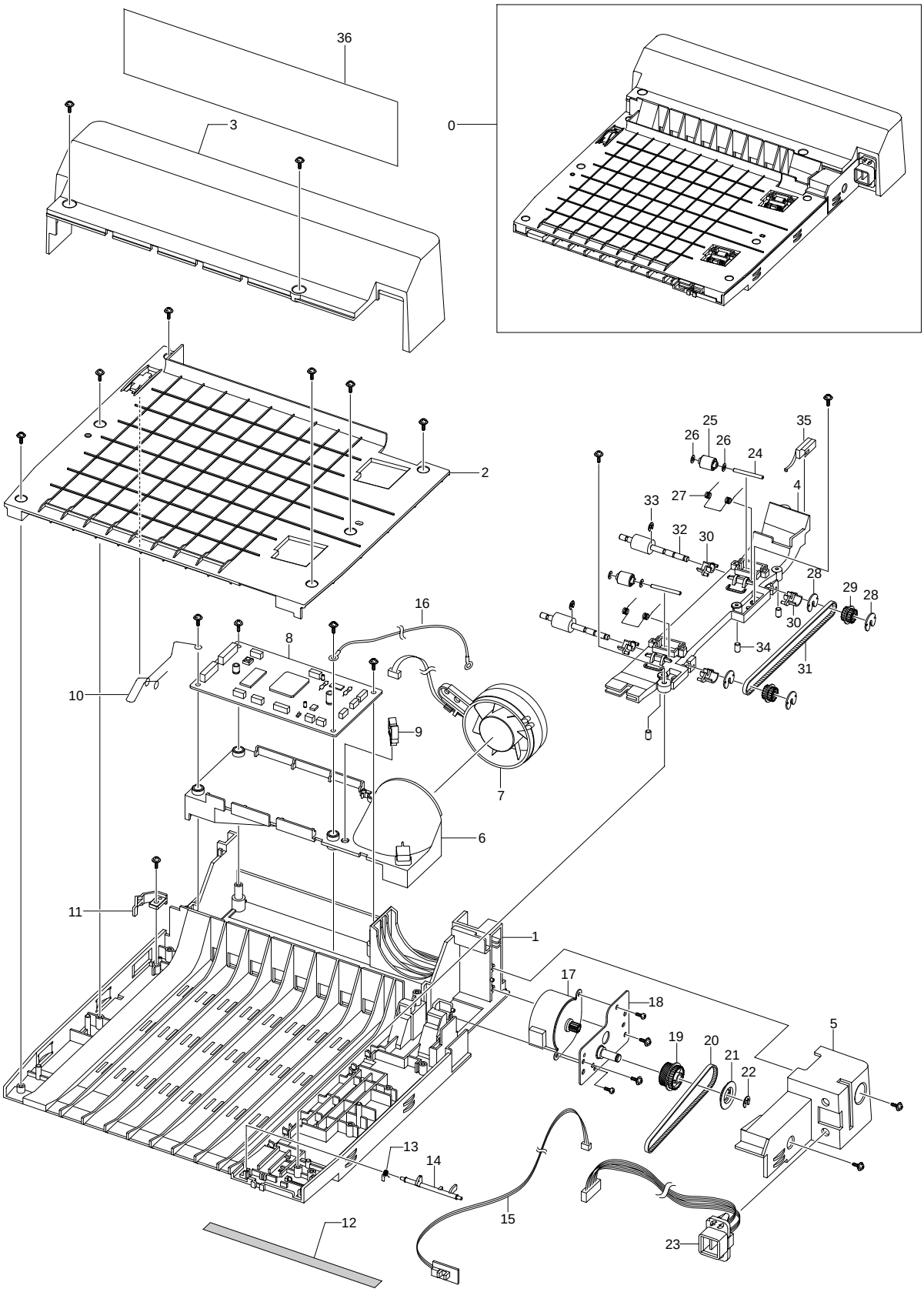
8.11 Duplex Unit



Parts List(SEC model: ML-3561N/XAA)

Service: SA(Service Available), SNA(Service not Available)

Draw # (Section-No.)	Parts Code	Description	Qt'y	Service	Remark
8.1 Main Exploded View Parts List					
8.1-1	JC96-03416A	ELA UNIT-FRAME BASE;ML-3560,XEROX,-,110V		SA	
8.1-2	JC96-03402C	ELA HOU BASE-HOUSHING;ML-3561N,SEC,EXPOR		SNA	
8.1-3	JC97-02230B	MEA UNIT-KNOCK_UP MP;ML-3560,SEC,-,110V/	G0470	SA	
8.1-3-1	JC61-01251B	PLATE-M_KNOCK UP MP;ML-3560,ABS,T2.2,W11	W3027	SA	
8.1-3-2	JC74-00011A	MPR-PAD KNOCK UP MP;ML-6060A,CR+CORK,10*	K5007	SNA	
8.1-3-3	JC72-01006B	PMO-SIDE GUIDE MP(R);ML-2150/XRX,HIPS,G6	G2301	SA	
8.1-3-4	JC72-01005B	PMO-SIDE GUIDE MP(L);ML-2150/XRX,HIPS,G6	G2299	SA	
8.1-3-5	JG66-40003A	GEAR-PINION;SF4000,POM,WHT,M1,Z16	G0367	SA	
8.1-3-6	JC66-00895A	SHAFT-REINFORCEMENT;ML-3560,SUM22+NI,L24		SNA	
8.1-4	JC97-02231A	MEA UNIT-COVER MP_SEC;ML-3560,SEC,-,110V	E4062	SA	
8.1-4-1	JC63-00695A	COVER-M-MP_SEC;ML-3560,ABS,T2.5,W182.3,L		SNA	
8.1-4-2	JC63-00691B	TRAY-M_EXTEND_MP;ML-3560,HIPS,T2.5,W147.	K4281	SA	
8.1-5	JC63-00694B	TRAY-M_LINK MP(L);ML-3560,ABS,T2.0,W23.2	K4282	SA	
8.1-6	JC63-00689B	TRAY-M_LINK MP(R);ML-3560,ABS,T2.0,W23.2	K4283	SA	
8.1-7	JC66-00540A	ROLLER-TRANSFER;ML-2150,NBR SPONGE+SUM/N	Z3014	SA	
8.1-8	JC96-01729A	ELA UNIT-HOLDER TR R;ML-6060A,SAMSUNG,SE	K3139	SA	
8.1-8-1	JC72-41142A	PMO-BUSHING TR;ML-5000A,POM(CF-610,CH-15		SNA	
8.1-8-2	JC61-00046A	SPRING ETC-TR R HAWK;ML-6060A,SUS 304 WP		SNA	
8.1-8-3	JC72-41145C	PMO-TRANSFER HOLDER R;ML-6060A,ABS,PANTO		SNA	
8.1-8-4	JC70-11053A	IPR-PLATE TR;ML-5000A,PB(C5210P),-,T0.15		SNA	
8.1-9	JC96-01730A	ELA UNIT-HOLDER TR L;ML-6060A,SAMSUNG,SE	K3138	SA	
8.1-9-1	JC72-41142A	PMO-BUSHING TR;ML-5000A,POM(CF-610,CH-15		SNA	
8.1-9-2	JC61-00047A	SPRING ETC-TR L HAWK;ML-6060A,SWP-B,-,-,	Z4277	SA	
8.1-9-3	JC72-41145D	PMO-TRANSFER HOLDER L;ML-6060A,ABS,GRAY,		SNA	
8.1-10	JC72-41292B	PMO-CAP TR;ML-3560,POM,C75064,45.4*6.6,M	Z0015	SA	
8.1-11	JC66-00039A	GEAR-TR29;ML-6060A,POM,BLK,0.6,29	G0439	SA	
8.1-12	JC96-03665A	ELA UNIT-REGI;ML-3560,XEROX,-,REGI,-,-,-	K3142	SA	
8.1-13	JC66-00420A	GEAR-REGI Z25;ML-2150,M90-44,0.8,25,5.6,	G0415	SA	
8.1-14	JC67-00039A	CAP-M-GEAR;ML-2150,POM,-,-,-,BLK,-	C1013	SA	
8.1-15	JC59-00024A	UNIT-LSU;ML-3560,-,-,LETTER 35PPM ,600DP	K4284	SA	
8.1-16	JC96-03426A	ELA UNIT-EXIT SOL;ML-3560,XOG/SEC,USA,UN	K3059	SA	
8.1-17	JC96-03408A	ELA UNIT-DEVE MOTOR;ML-3560,XOG/SEC,USA,	K3057	SA	
8.1-18	JC96-03409A	ELA UNIT-MAIN MOTOR;ML-3560,XOG/SEC,USA,	K3140	SA	
8.1-19	JC92-01657C	PBA MAIN-MAIN;ML-3560,SEC,EXPORT,KESTREL		SA	
8.1-20	JC97-02226A	MEA UNIT-GEAR PICK UP;ML-3560,XOG/SEC,US	G0468	SA	
8.1-20-1	JC66-00870A	GEAR-M-PICK UP CAM;ML-3560,POM,0.8,27,-,		SNA	
8.1-20-2	JC66-00876A	GEAR-M-PICK UP;ML-3560,POM,0.8,27,-,WHT,		SNA	
8.1-20-3	JC61-00003A	SPRING ETC--CAM MP;ML-6100,SUS304-WPB,0.	Z4145	SA	
8.1-21	JC97-01738A	MEA UNIT-GEAR P/UP MP CARDINA;ML-2150,-,	G0467	SA	
8.1-21-1	JC66-00424A	GEAR-MP HOLDER_CAM;ML-2150,M90-44,0.8,37	H4008	SA	
8.1-21-2	JC66-00423A	GEAR-MP PICK_UP;ML-2150,POM(M90-44),0.8,	P2055	SA	
8.1-21-3	JC61-00003A	SPRING ETC--CAM MP;ML-6100,SUS304-WPB,0.	Z4145	SA	
8.1-22	JC66-10202A	BEARING-PICK UP;ML-80,POM,-,-,-	P2038	SA	
8.1-23	JC61-00755A	BRACKET-P-SHAFT MP;ML-2150,SECC,1.2,-,-,	S4013	SA	
8.1-24	JC47-00012A	MEP-CLUTCH FEED;-,ML-3560,4.0W,DC24V,167	B5011	SA	
8.1-25	JC33-00012A	SOLENOID-MAIN;DLH-34L008-07,ML-2150,24V,	S8015	SA	
8.1-26	JC33-00016A	SOLENOID-MP;-,ML-3560,24V,80 OHM,41.4X21	S8016	SA	
8.1-27	6044-000125	RING-E;ID4,OD9,T0.6,PASS,STSC	T2001	SA	
8.1-28	JC63-00692A	SHIELD-P-SMPS;ML-3560,SECC,T0.8,W222.1,L		SNA	
8.1-29	JC44-00082A	SMPS-(V1)+HVPS;ML-3560,*,AC/DC,-,100-120		SA	
8.1-30	JC71-00042A	BAR-P_CROSS BOTTOM;ML-2150,SECC T1.0,-,-	K2861	SA	
8.1-31	JC31-00029A	FAN-DC;AD0824MS-A70GL(TR),ML-2150,P.B.T,	F5016	SA	
8.1-32	JC61-00667A	STOPPER-M-FAN80;ML-2150,ABS,-,-,-,BLK,HB	F5029	SA	
8.1-34	JC96-03398A	ELA UNIT-DEVE;ML-3560/SEE,SAMSUNG,-,EXP,		SNA	
8.1-35	JC96-03418B	ELA UNIT-CASSETTE;ML-3560,SEC,-,110V/220	K3055	SA	
8.1-36	JC96-03423B	ELA UNIT-SCF		SA	
8.1-37	JC96-03412B	ELA UNIT-DUPLEX		SA	
8.1-38	JC61-00679A	BRACKET-P_DUMMY CTRL;ML-2150,SECC,0.6,-,	D2001	SA	
8.1-39	JC96-03733A	ELA HOU-NPC3_HIGH;ML-3561N,SAMSUNG,NPC3_	Z2266	SA	
8.1-39-1	JC92-01672A	PBA SUB-NPC3_HIGH;ML-3560,SEC,KOREA,10/1	M0449	SA	
8.1-39-2	JC61-00809A	BRACKET-_M_NPC;MLC-500,SECC,T0.8,-,-,-,-	H4009	SNA	
8.2 Cover Assembly					
8.2-0	JC96-03402C	ELA HOU BASE-HOUSHING;ML-3561N,SEC,EXPOR		SNA	

Service: SA(Service Available), SNA(Service not Available)

Draw # (Section-No.)	Parts Code	Description	Qt'y	Service	Remark
8.2-1	JC96-03411C	ELA UNIT-COVER TOP;ML-3561N,SEC,EXPORT,U		SA	
8.2-1-1	JC63-00699B	COVER-M_TOP;ML-3560,ABS,T2.5,W396.0,L426		SNA	
8.2-1-2	JC63-00704A	COVER-M-OPEN_SEC;ML-3560,ABS,T2.5,W395.9	H1295	SA	
8.2-1-3	JC72-01367B	PMO-STACKER_RX;ML-3560,ABS,WHT,W93.8*L53	L6055	SA	
8.2-1-4	JC66-00902B	LEVER-M_STACKING 38;ML-3560,PC+ABS,T1.2,	L3019	SA	
8.2-1-5	JC61-00656A	STOPPER-M-HINGE OPEN;ML-2150,ABS,-,-,-,-	H3073	SA	
8.2-1-6	JC63-00705B	COVER-M_OP PANEL_SEC;ML-3561N,ABS,T2.5,W		SNA	
8.2-1-8	JC75-00095A	MEC-BRUSH ANTISTATIC;ML-6060A,SEC,NTR	B5010	SA	
8.2-1-9	JC92-01473C	PBA MAIN-LCD PANEL;ML-3560,SEC,KOREA,LCD	K5008	SA	
8.2-1-10	JC64-00195A	KEY-M-BUTTON_SEC;ML-3560,ABS,80.8*80.0,H	S3059	SA	
8.2-1-11	JC64-00196A	KEY-M-ON LINE;ML-3560,ACRYL,D15.7, H10.6	S3060	SA	
8.2-1-12	JC64-00197A	KEY-M-SAVE MODE;ML-3560,ACRYL,D15.7, H11	S3061	SA	
8.2-1-13	JC64-00194A	WINDOW-M-LCD;ML-3560,PC,T1.5,W51.0,L84.7	K4285	SA	
8.2-1-14	JC63-00836A	GROUND-P-TOP_COVER;ML-3560,C5210P 1/2H,T	G0440	SA	
8.2-2	JC63-00684B	COVER-M_LEFT;ML-3560,ABS,T2.5,W425.0,L32	H1292	SA	
8.2-3	JC63-00701B	COVER-M_RIGHT;ML-3560,ABS,T2.5,W425.0,L3	H1294	SA	
8.2-4	JC63-00702B	COVER-M_CONTROL BOX;ML-3560,ABS,T2.5,W21	H1288	SA	
8.2-5	JC63-00685B	COVER-M_FRONT INNER;ML-3560,HIPS,T2.5,W3	H1291	SA	
8.2-6	JC97-02232B	MEA UNIT-COVER REAR;ML-3560,SEC,-,110V/2	E4063	SA	
8.2-6-1	JC63-00703B	COVER-M_REAR;ML-3560,ABS,T2.5,W300.8,L19	H1293	SA	
8.2-6-2	JC72-01357A	PMO-STACKER REAR;ML-3560,ABS,WHT,W289.4*	L6054	SA	
8.2-6-3	JC70-00007A	ICT-BRKT REAR COVER;ML-7000,SPCC,-,T1.2,		SNA	
8.2-6-4	JC61-01217A	GUIDE-M_EXIT;ML-3560,PET+GF30%,FR530,T2.	G0441	SA	
8.2-6-5	JC72-01359A	PMO-STRIPE;ML-3560,PE BOX 7033,NATURAL,T	L6056	SA	
8.2-6-6	JC70-20901A	IEX-SHAFT IDLE,F/UP;ML-5000A,SUS304,-,PI	S4049	SA	
8.2-6-7	JC72-20902A	PEX-ROLLER F/UP(2);ML-5000A,TEFLON,WHT,-	K3804	SA	
8.2-6-8	JC61-70909A	SPRING ETC-SAPERATION;ML-165,SUS304 WPB,	Z4254	SA	
8.2-6-9	JC68-01526A	LABEL(P)-JAM REMOVAL;COMMON,-,WHITE POLY		SNA	
8.2-7	JC63-00696B	COVER-M_FRAME EXIT;ML-3560,ABS,T2.5,W75.	H1290	SA	
8.2-8	JC63-00697B	COVER-M_DUMMY DUP;ML-3560,ABS,T2.0,W53.2	H1289	SA	
8.3 Frame Assembly					
8.3-0	JC96-03416A	ELA UNIT-FRAME BASE;ML-3560,XEROX,-,110V		SA	
8.3-1	JC61-01206A	FRAME-M_BASE;ML-3560,PC,NH-1035P,5V,BLK,		SNA	
8.3-2	JC97-02228A	MEA UNIT-PICK UP MP;ML-3560,XEROX,-,110V	G0472	SA	
8.3-2-1	JC66-00894A	SHAFT-M-PICK UP MP;ML-3560,PC,L339.8,OD1	S4117	SA	
8.3-2-2	JC72-01003A	PMO-IDLE PICK UP MP;ML-2150,POM,WHITE,-,	P2131	SA	
8.3-2-4	JC96-02686B	ELA UNIT-ROLLER P/UP MP;ML-3560,XEROX/SE	K3144	SA	
8.3-2-4-1	JC61-00705A	HOLDER-M-PICKUP MP;ML-2150,POM,-,-,-,BLK	P2062	SA	
8.3-2-4-2	JC61-00685A	HOUSING-M-PICK UP MP;ML-2150,PC+ABS,-,-,	P2064	SA	
8.3-2-4-3	JC73-00224A	RUBBER-PICK UP MP;ML-3560,IR,D29.8,35,27	C4024	SA	
8.3-2-5	JC66-00893A	CAM-M-SHAFT;ML-3560,POM,T1.5,¨ª10.95*8.3	P2043	SA	
8.3-3	JC97-02238A	MEA UNIT-GEAR IDLE;ML-3560,XOG/SEC,USA,M	E4065	SA	
8.3-3-1	JC61-01200A	BRACKET-P-GEAR IDLE;ML-3560,SECC,1.2,118		SNA	
8.3-3-2	JC66-00872A	GEAR-FUSER IDLE 3;ML-3560,POM,1,53,-,WHT		SNA	
8.3-3-3	JC66-00859A	GEAR-M-FUSER IDLE 2;ML-3560,POM,1,33,-,W		SNA	
8.3-3-4	JC66-00858A	GEAR-M-FUSER DRV IN;ML-3560,POM,1,33,-,W		SNA	
8.3-3-5	JC66-00868A	CLUTCH-M-HUB;ML-3560,POM,-,WHT,CLUTCH HU		SNA	
8.3-3-6	JC66-00417B	GEAR-RDCN FUSER OUT;ML-3560,HTNFR,1.0,25	G0368	SA	
8.3-3-7	6044-000231	RING-E;ID5.0,OD11.0,T0.6,PASS,STS304		SA	
8.3-4	JC96-03403A	ELA HOU BASE-HOLDER;ML-3560,XEROX,-,110V	H1297	SA	
8.3-4-1	JC61-01248A	FRAME-M-HOLDER PAD;ML-3560,HIPS,-,HB,BLK		SNA	
8.3-4-2	JC61-00684A	HOLDER-M-PAD;ML-2150,PC,-,-,-,BLK,-	H4029	SA	
8.3-4-3	JC73-00132A	RPR-FRICTION PAD MP;ML-2150,NBB,53*9.8*T	P0034	SA	
8.3-4-4	JC61-00387A	SPRING ETC-PAD;ML-9400W,SUS304WPB,PI0.5,	Z4226	SA	
8.3-4-5	JC72-01365A	PMO-ACTUATOR EMPTY MP;ML-3560,PC,BLK,42.	W3028	SA	
8.3-4-6	JC61-70965A	SPRING ETC-EMPTY;ML-6000,SUS304-WPB,PI0.	O1099	SA	
8.3-4-7	0604-001095	PHOTO-INTERRUPTER;TR,90%,150mW,DIP-4,BK	W3026	SA	
8.3-4-8	JC39-00451A	CBF HARNESS-MP_EMPTY;ML-3560,CBF,UL 1061	H1253	SA	
8.3-5	JC97-01034A	MEA RACK-EXIT ROLLER;ML-1605,SUMSUNG,KOR	E4060	SA	
8.3-5-1	JC72-41006A	PMO-HOLDER EXIT ROLL;ML-165,PC,BLK,HB,-	E4126	SA	
8.3-5-2	JC72-41007A	PMO-ROLLER FD F;ML-165,POM,BLACK,-,-,-,-	K4063	SA	
8.3-5-3	JC72-41008A	PMO-ROLLER FD R;ML-165,POM,BLACK,-,-,-,-	K4064	SA	
8.3-5-4	JC61-70911A	SPRING ETC-EXIT ROLL FD;ML-165,SUS304 WP	Z4137	SA	
8.3-6	JC66-00883A	ROLLER-EXIT_F/DOWN;ML-3560,SUM+EPDM,D16,	D4089	SA	
8.3-7	JC61-00673A	HOLDER-M-BUSHING EXIT;ML-2150,POM,-,-,-,	H4022	SA	
8.3-8	JC72-01310A	PMO-ACTUATOR OUTFULL;ML-2150,POM,BLK,-,V	K3819	SA	
8.3-9	JC66-00674A	GEAR-M-EXIT Z17;ML-2550,M90-44,1.0,17,¥Õ	G0331	SA	
8.3-10	JC61-00673A	HOLDER-M-BUSHING EXIT;ML-2150,POM,-,-,-,	H4022	SA	
8.3-11	JC97-02299A	MEA UNIT-ROLL EXIT DU;ML-3560,XEROX,USA,	G0473	SA	
8.3-11-1	JC66-00882A	SHAFT-M-EXIT_DUPLEX;ML-3560,PC,5V,NH-103		SNA	

Service: SA(Service Available), SNA(Service not Available)

Draw # (Section-No.)	Parts Code	Description	Qt'y	Service	Remark
8.3-11-2	JC73-00210A	RUBBER-EXIT_DUP;ML-3560,EPDM,D18.7X11.2,	C4021	SA	
8.3-12	JC61-01262A	BUSH-M_EXIT D7;ML-3560,POM,D7,D9,7,BLK,-	S4014	SA	
8.3-13	JC66-00854A	GEAR-M-EXIT DUP Z21;ML-3560,POM,1,21,-,W	G0200	SA	
8.3-14	JC96-02127A	ELA HOU-CST SENSOR HAWK16;ML-7250,XEROX,	Z2263	SA	
8.3-14-1	JC92-01336A	PBA SUB-CASSETTE;ML-1650,KOREA/EXPORT,-,		SNA	
8.3-14-2	JC70-00192A	IPR-PLATE SENSOR;ML-7250,SUS301,-,0.2T,-	S3058	SA	
8.3-14-3	JC70-00195A	IPR-BRACKET SENSOR;ML-7250,SECC,-,1.0T,-	S3055	SA	
8.3-15	JC39-00261A	CBF HARNESS-SENSOR;ML-2150,CBF,UL 1061,4	H1242	SA	
8.3-16	JC61-00675A	GUIDE-P_REGI UPPER;ML-2150,SECC,1.2T,-,-	G2082	SA	
8.3-17	JC61-70918A	SPRING ETC-LEVER;ML-165,SUS304 WPB,PI0.5	L4097	SA	
8.3-18	JC61-00671A	HOLDER-M-BUSHING TX;ML-2150,POM,-,-,-,BL	H4023	SA	
8.3-19	JC61-00691A	GUIDE-PLATE PAPER;ML-2060,SECC,T0.6,-,-,	G2091	SA	
8.3-20	JC70-00339A	IPR-P_GROUND PLATE PAPER;ML-2150,SUS304	P5064	SA	
8.3-21	0604-001095	PHOTO-INTERRUPTER;TR,90%,150mW,DIP-4,BK	W3026	SA	
8.3-23	JC39-00458A	CBF HARNESS-THERM;ML-3560,CBF,UL 1061,2P	H1256	SA	
8.3-24	JC61-01581A	HOUSING-M_TERMINAL;ML-3560,PET+GF30% FR5		SNA	
8.3-25	JC65-00013A	TERMINAL-P-FUSER;ML-3560,C5210P ZINC COA	K4277	SA	
8.3-26	JC39-00456A	CBF HARNESS-FUSER;ML-3560,CBF,UL 3122,2P	H1249	SA	
8.3-27	JC67-00099A	CAP-M-HOUS_TERM;ML-3560,PC NH1035P,1.5,9		SNA	
8.3-28	JC63-00670A	SHIELD-P-CTRL;ML-3560,SECC,0.6,169.4,194		SNA	
8.3-29	JC63-00677A	GROUND-P-MOTOR_DEVE;ML-3560,C5210P,T0.2,		SNA	
8.3-30	JC63-00669A	GROUND-P_GUIDE TR;ML-3560,C5210P,T0.2,10		SNA	
8.3-31	JC63-00672A	GROUND-P-REGI_ROLLER;ML-3560,C5210P,T0.2		SNA	
8.3-32	JC63-00678A	GROUND-P-PICK_UP_MP;ML-3560,C5210P,T0.2,		SNA	
8.3-33	JC63-00673A	GROUND-P-SCF_MAIN;ML-3560,C5210P,T0.2,26		SNA	
8.3-34	JC63-00671A	GROUND-P-MOTOR_MAIN;ML-3560,C5210P,T0.2,		SNA	
8.3-35	JC63-00680A	GROUND-P-GUIDE_DUP;ML-3560,C5210P,T0.2,1		SNA	
8.3-36	JC67-00093A	CAP-M-GUIDE_HARNESS;ML-3560,ABS HF0660I,		SNA	
8.3-37	JC72-01356A	PMO-DUMMY_DEVE;ML-3560,ABS,BLK,68.4*31.6	Z0016	SA	
8.3-38	JC96-01772A	ELA HOU-VARISTOR;ML-6060,NEC/SEC,110/220	K3053	SNA	
8.3-39	JC61-40001A	FOOT-ML80;ML-80,NBR,-,GRAY,-,-,-	F1013	SA	
8.3-40	JC72-01355A	PMO-REMOVE_LOCK_CST;ML-3560,POM,BLK,36*3	L6040	SA	
8.3-41	JC66-00890A	SHAFT-M-GEAR_RETARD;ML-3560,POM GF25,27.		SNA	
8.3-42	JC66-00439A	SHAFT-M-COUPLING RETARD;ML-2150,POM GF 2	S4116	SA	
8.3-43	JC72-41191B	PMO-BEARING SHAFT;ML-2150,POM,BLK,-,DE89	S4068	SA	
8.3-44	JC66-00420A	GEAR-REGI Z25;ML-2150,M90-44,0.8,25,5.6,	G0415	SA	
8.3-45	JC72-41191B	PMO-BEARING SHAFT;ML-2150,POM,BLK,-,DE89	S4068	SA	
8.3-47	JC96-03661A	ELA HOU-FRAME_LSU_LO;ML-3560,XEROX,-,-,-	Z2264	SA	
8.3-47-1	JC61-01207A	FRAME-M-LSU_LOWER;ML-3560,ABS,HF0660I,HB		SNA	
8.3-47-2	JC92-01705A	PBA SUB-TONER SENSOR;ML-3560,SEC,KOREA,T	M0412	SA	
8.3-47-3	JC65-00004A	TERMINAL-P_DEVE;ML-2060,SUS304WPB,-,-,PI	T2175	SA	
8.3-47-4	JC92-01730A	PBA SUB-COVER OEPN;ML-3560,SEC,KOREA,-,-	M0443	SA	
8.3-47-5	JC67-00095A	CAP-M_COVER_OPEN;ML-3560,POM(M90-44),1.5		SNA	
8.3-48	JC96-03425A	ELA UNIT-FEED3X5;ML-3560,XEROX,-,110V/22	K3062	SA	
8.3-48-1	JC61-01240A	HOLDER-M-SAW;ML-3560,PC,1.5,27.5,204,BLA		SNA	
8.3-48-2	JC61-01235A	GUIDE-P-TRANSFER_FRONT;ML-3560,SECC,0.6,		SNA	
8.3-48-3	JC61-01236A	PLATE-P-SAW;ML-3560,SUS304CSP,0.15,14.5,		SNA	
8.3-48-4	JC66-00889A	SHAFT-M ROLLER_BELT;ML-3560,PC,170,10,BL		SNA	
8.3-48-5	JC66-00887A	ROLLER-M IDLE_BELT;ML-3560,POM,4.8,9.6,N		SNA	
8.3-48-7	JC73-00206A	RUBBER-BELT_FEED;ML-3560,EP+NR,L=62,30,5	C4020	SA	
8.3-48-8	JC61-01239A	GUIDE-M SHAFT_BELT;ML-3560,POM,0.6,10,6.		SNA	
8.3-49	JC96-03419A	ELA UNIT-RETARD;ML-3560,XEROX,-,110V/220	K3143	SA	
8.3-49-1	JC61-01231A	FRAME-M-RETARD;ML-3560,PC,NH-1035P,-,BLA		SNA	
8.3-49-2	JC61-01232A	HOLDER-M-RETARD;ML-3560,ABS,1.5,26.6,65.		SNA	
8.3-49-3	JC61-00013A	SPRING ETC-PAD;SF-5100,SUS304WPB,0.5,-,1		SNA	
8.3.49-5	JC61-00635A	HOUSING-M-RETARD;ML-2150,POM(M90-44),-,-	H6035	SA	
8.3-49-4	JC61-00652A	BUSH-M-RETARD;ML-2150,POM(DE-8903),-,-,-	K2883	SA	
8.3-49-6	JC66-00590A	SHAFT-RETARD;ML-2150,SUM 22,58,6,-,-,-	S4130	SA	
8.3-49-7	6044-000125	RING-E;ID4,OD9,T0.6,PASS,STSC	T2001	SA	
8.3-49-8	JC72-00993A	PMO-HUB OUT RETARD;ML-2150,POM,BLK,-,M90	K4021	SA	
8.3-49-9	6107-001157	SPRING-TS;SWP-B,-,PI0.8,D11.5,-,N11.5,-,		SA	
8.3-49-10	JC70-00520A	HUB-IN_RETARD;ML-3560,BRONZE SINTERED,1.		SNA	
8.3-49-11	JC73-00207A	RUBBER-RETARD;ML-3560,IR,19.5,35,30,YELL	C4026	SA	
8.3-50	JC96-03421A	ELA UNIT-FEED2 IDLE;ML-3560,XEROX,-,110V	K3060	SA	
8.3-50-1	JC61-01242A	HOLDER-IDLE_FEED2;ML-3560,ABS,2.5,17.4,6		SNA	
8.3-50-2	JC67-00105A	CAP-M IDLE_FEED2;ML-3560,POM,2,9,21.6,NT		SNA	
8.3-50-3	JC61-00387A	SPRING ETC-PAD;ML-9400W,SUS304WPB,PI0.5,	Z4226	SA	
8.3-50-4	JC61-00652A	BUSH-M-RETARD;ML-2150,POM(DE-8903),-,-,-	K2883	SA	
8.3-50-5	JC66-00912A	SHAFT-IDLE_FEED2;ML-3560,SUM22+NI,52,6,-	S4108	SA	
8.3-50-6	6044-000125	RING-E;ID4,OD9,T0.6,PASS,STSC	T2001	SA	
8.3-50-7	JC66-00892A	ROLLER-M IDLE_FEED2;ML-3560,POM,17,35.5,		SNA	

Service: SA(Service Available), SNA(Service not Available)

Draw # (Section-No.)	Parts Code	Description	Qt'y	Service	Remark
8.3-50-9	JC66-00591A	SHAFT-HUB IN;ML-2150,SUM 24L,8.5,1.9,-,-	S4107	SA	
8.3-51	JC61-01250A	STOPPER-M-KNOCK UP MP_L;ML-3560,POM,T2.5	H3074	SA	
8.3-52	JC61-01249A	STOPPER-M-KNOCK UP MP_R;ML-3560,POM,T2.5	H3075	SA	
8.3-53	JC61-01252A	RAIL-M-LEFT_DUP;ML-3560,POM,T2.0,W7.4,L1	L6057	SA	
8.3-54	JC61-01253A	RAIL-M-RIGHT_DUP;ML-3560,POM,T2.0,W10.0,	L6058	SA	
8.3-55	JC72-41191B	PMO-BEARING SHAFT;ML-2150,POM,BLK,-,DE89	S4068	SA	
8.3-56	JC66-00420A	GEAR-REGI Z25;ML-2150,M90-44,0.8,25,5.6,	G0415	SA	
8.3-57	JC66-10202A	BEARING-PICK UP;ML-80,POM,-,-,-	P2038	SA	
8.3-58	JC72-00991A	PMO-ACTUATOR EMPTY;ML-2150,POM,BLK,-,-,-	K3816	SA	
8.3-59	JC96-03422A	ELA UNIT-PICK UP;ML-3560,XEROX,-,110V/22	K3141	SA	
8.3-59-1	JC66-00910A	SHAFT-PICK UP;ML-3560,SUM22+NI,196,6,-,-	S4118	SA	
8.3-59-2	JC97-02233A	MEA UNIT-P/UP_HOUSING;ML-3560,XEROX,-,11	G0471	SA	
8.3-59-2-1	JC72-01361A	PMO-M IDLE-PICK UP;ML-3560,POM,NTR,29.8,	L6039	SA	
8.3-59-2-3	JC61-01238A	HOUSING-M-PICK UP;ML-3560,ABS,2.0,28.8,5		SNA	
8.3-59-3	JC72-01362A	PMO- M CAM_PICK_UP;ML-3560,POM,NTR,-,M90		SNA	
8.3-59-4	JC66-00911A	SHAFT-FEED1;ML-3560,SUM22+NI,214.5,6,-,-	C4028	SA	
8.3-59-5	JC81-03458A	AS-UNIT_FEED1;ML-3560,-,-,110V/220V,SVC,	K2860	SA	
8.3-59-5-1	JC61-01237A	HOUSING-M-FEED1;ML-3560,ABS,2.5,15.5,33.		SNA	
8.3-59-5-2	JC73-00208A	RUBBER-FEED1;ML-3560,IR,17.85,35,30,YELL	C4022	SA	
8.3-59-6	JC63-00674A	GROUND-P-PICK_UP_MAIN;ML-3560,C5210P,0.2		SNA	
8.3-59-8	JC72-00382B	PMO-BUSHING FEED;ML-1710,POM(DERLIN 8903	F6161	SA	
8.3-59-9	JC61-01234A	GUIDE-P-FRONT-DUP-PICKUP;ML-3560,SECC,1.		SNA	
8.3-59-10	JC61-01233A	GUIDE-M SUPPORT-PICKUP;ML-3560,ABS, GF20		SNA	
8.3-60	JC96-03420A	ELA UNIT-FEED2;ML-3560,XEROX,-,110V/220V	K3061	SA	
8.3-60-1	JC61-01241A	FRAME-M-PICK UP;ML-3560,PC/ABS,NH-1000T,		SNA	
8.3-60-3	JC66-00891A	SHAFT-M-FEED2;ML-3560,PC,232.3,12,BLACK,		SNA	
8.3-60-5	JC73-00205A	RUBBER-ROLLER_FEED2;ML-3560,CR+NR,D=15.1	C4027	SA	
8.3-61	JC92-01704A	PBA SUB-JOINT;ML-3560,SEC,USA,KESTREL,JO	M0448	SA	
8.3-62	JC39-00441A	CBF HARNESS-TRAY OUT;ML-3560,CBF,UL 1061	H1257	SA	
8.3-63	JC67-00094A	CAP-M_POWER;ML-3560,PC NH-1035P,2,55.5,4		SNA	
8.3-64	JC39-00455A	CBF HARNESS-INLET;ML-3560,CBF,UL 1617 /	H1252	SA	
8.3-65	JC66-00888A	SHAFT-M BELT_GEAR;ML-3560,PC,32.2,8,BLAC		SNA	
8.3-66	JC72-41191B	PMO-BEARING SHAFT;ML-2150,POM,BLK,-,DE89	S4068	SA	
8.3-67	JC66-00674A	GEAR-M-EXIT Z17;ML-2550,M90-44,1.0,17,¥Õ	G0331	SA	
8.3-68	JC67-00092A	CAP-M-DEVE_MOTOR;ML-3560,ABS G/F20 GR402		SNA	
8.3-69	JC39-00449A	CBF HARNESS-DUPLEX;ML-3560,CBF,UL 1061,8		SNA	
8.3-71	JC67-00036A	CAP-M-WIRE PTL LOWER;ML-2150,POM,-,-,-,B	C1015	SA	
8.3-72	JC65-00001A	TERMINAL-P_PTL;ML-2060,SUS301 3/4H,-,-,T	K4276	SA	
8.3-73	JC39-00181A	CBF HARNESS-PTL;SCX-5100,WIRE HARNESS,UL	H1212	SA	
8.3-76	JC92-01512B	PBA SUB-EXIT SENSOR;ML-3560,SEC,KOREA,EX	M0445	SA	
8.3-77	JC92-01261C	PBA SUB-FUSER SW;ML-3560,SEC,KOREA,FUSER	M0447	SA	
8.3-78	JC61-01218A	GUIDE-M-FRONT;ML-3560,PET+GF30%,FR530,2,	G0442	SA	
8.3-79	JC65-00010A	TERMINAL-P-GUIDE_FRONT;ML-3560,C5201P,-,		SNA	
8.3-81	JC72-00317A	PMO-GUIDE DEVE L;ML-6060A,POM,-,-,-,-,-,	T2158	SA	
8.3-82	JC72-00318A	PMO-GUIDE DEVE R;ML-6060A,POM,-,-,-,-,-,	T2159	SA	
8.3-83	JC61-70932A	SPRING ETC-GUIDE DEVE;ML-5000A,-,D4.3,-,	Z4188	SA	
8.3-84	JC65-00008A	TERMINAL-P-TR_KESTREL;ML-3560,C5210P,-,-	K4278	SA	
8.3-86	JC65-00009A	TERMINAL-SPRING_TR;ML-3560,STS304WPB,-,-	K4279	SA	
8.3-87	JC92-01488A	PBA MAIN-ZENER;ML-2150,SEC,KOREA,ZENER B	M0442	SA	
8.3-89	JC63-00679A	GROUND-P-ZENER;ML-3560,C5210P,T0.2,26.6,		SNA	
8.3-90	JC63-00676A	GROUND-P-FUSER;ML-3560,SUS301,T0.2,32.2,		SNA	
8.3-91	JC65-00006A	TERMINAL-P_HV CARDINAL;ML-2060,SUS304 1/	K4272	SA	
8.3-92	JC97-01401A	MEA UNIT-TERMINAL:TR;ML-5000A,SAMSUNG,KO	K3638	SA	
8.3-93	JC39-00457A	CBF HARNESS-HVPS;ML-3560,CBF,UL 1617/323	H1251	SA	
8.3-94	JC70-00332A	IPR-P_GROUND OPC;ML-2150,SUS301 3/4H,-,0	O0020	SA	
8.3-95	JC92-01511B	PBA SUB-EMPTY SENSOR;ML-3560,SEC,KOREA,-	M0444	SA	
8.3-96	JC39-00440A	CBF HARNESS-SENSOR;ML-3560,CBF,UL 1061,4	H1254	SA	
8.3-97	JC92-01262C	PBA SUB-FEED SENSOR;ML-3560,SEC,KOREA,FE	M0446	SA	
8.3-98	JC67-00098A	CAP-M_HV;ML-3560,PC 5V NH-1035P,1.5,95.0		SNA	
8.3-99	JC67-00097A	CAP-M_SENSOR_FEED;ML-3560,PC NH1035P,1.5		SNA	
8.3-100	JC67-00138A	DUCT-M_FAN;ML-3560,ABS HB HF0660I,1.5,80	H1296	SA	
8.4 Fuser Unit					
8.4-0	JC96-03406A	ELA UNIT-FUSER-110V;ML-3560,XEROX,USA,11		SA	
8.4-1	JC96-03427A	ELA UNIT-FUSER_UPPER;ML-3560,XEROX,USA,1		SNA	
8.4-1-2	JC71-00056A	ELECTRODE-P-FU_L_08;ML-3560,T0.8,20.2,32		SNA	
8.4-1-3	1404-001141	THERMISTOR-NTC;5.6Kohm,5%,3200K,2.1mW/C,		SNA	
8.4-1-4	JC72-41012C	PMO-GUIDE CLAW GREEN;ML-3560,PEEK,BLK,T1	Z0018	SA	
8.4-1-5	6107-001159	SPRING-TS;SUS304,-,PI0.45,D3.85,L20,-,W1		SA	
8.4-1-6	JC61-70909A	SPRING ETC-SAPERATION;ML-165,SUS304 WPB,	Z4254	SA	
8.4-1-7	JC75-00095A	MEC-BRUSH ANTISTATIC;ML-6060A,SEC,NTR	B5010	SA	

Service: SA(Service Available), SNA(Service not Available)

Draw # (Section-No.)	Parts Code	Description	Qt'y	Service	Remark
8.4-1-8	JC61-01215A	HOLDER-M-LEVER_L;ML-3560,PC,NH1023XD,T1.		SNA	
8.4-1-9	JC61-00785A	HOLDER-M-IDLE ROLLER;ML-2150,PC,-,-,-,BL	H4027	SA	
8.4-1-10	JC72-40981A	PMO-ROLLER UPPER DP;ML-165,POM,WHT,HB,-	K4068	SA	
8.4-1-11	JC61-01215A	HOLDER-M-LEVER_L;ML-3560,PC,NH1023XD,T1.		SNA	
8.4-1-12	JC61-01216A	HOLDER-M-LEVER_R;ML-3560,PC,NH1023XD,T1.		SNA	
8.4-1-13	JC71-00052A	ELECTRODE-P-SUPPORT;ML-3560,T0.2,-,D27.6		SNA	
8.4-1-15	6003-000196	SCREW-TAPTITE;PWH,+,B,M3,L10,NI PLT,SWRC		SA	
8.4-1-16	JC66-00932A	ROLLER-HEAT;ML-3560,AL PIPE T1MM,39.9MM,		SA	
8.4-1-17	6601-001346	BEARING-BALL;6809 2Z,ID45,OD58,L7,GCR5,0	K2862	SA	
8.4-1-18	JC67-00101A	CAP-M-END;ML-3560,PPS, OFL4036,T2,D39.8,	A0004	SA	
8.4-1-19	JC61-01260A	BUSH-M_HR;ML-3560,PPS,RBA313N,D39.95,D44	S4015	SA	
8.4-1-20	JC66-00878A	GEAR-M-FUSER Z49;ML-3560,PPS,OFL4036,M1,	G0332	SA	
8.4-1-21	JC61-01550A	STOPPER-SPACER;ML-3560,PC,T0.5,-,-,BLACK		SNA	
8.4-1-22	JC71-00051A	ELECTRODE-FU;ML-3560,T5.5,-,D28,SME19		SNA	
8.4-1-23	JC61-70932A	SPRING ETC-GUIDE DEVE;ML-5000A,-,D4.3,-,	Z4188	SA	
8.4-1-24	JC67-00111A	CAP-M_ACTUATOR_UP;ML-3560,PC+GF20%,HF320		SNA	
8.4-1-25	JC63-00726A	COVER-M-REAR GUIDE UP;ML-3560,NYLON+GF25		SNA	
8.4-1-26	JC71-00055A	ELECTRODE-P-SU CARBON;ML-3560,T0.2,8.5,9		SNA	
8.4-1-27	JC70-20901A	IEX-SHAFT IDLE,F/UP;ML-5000A,SUS304,-,PI	S4049	SA	
8.4-1-28	JC61-01284A	HOLDER-P-SL CONNECTOR;ML-3560,SUS301 3/4		SNA	
8.4-1-H	JC96-03722A	ELA UNIT-HEAT 110V;ML-3560,SEC,-,FUSER,H		SA	
8.4-2	JC63-00681A	COVER-M-FUSER_UPPER;ML-3560,PET+GF30%,FR		SNA	
8.4-2-1	JC61-01213A	BRACKET-P-FUSER;ML-3560,SECC,T1.2,35.5,4		SNA	
8.4-2-2	JC66-00426B	GEAR-IDLE 23;ML-3560,HTNFR,1.0,23,8,BLAC	G0199	SA	
8.4-2-3	JC66-00869A	GEAR-M-IDLE 25;ML-3560,POM,1,25,-,WHT,27		SNA	
8.4-3	JC97-02223A	MEA UNIT-FUSER_LOWER;ML-3560,XEROX,USA,M		SNA	
8.4-3-1	JC66-00931A	ROLLER-PRESSURE;ML-3560,STKM+LTV+PFA TUB	K4222	SA	
8.4-3-2	JC61-01261A	BUSH-M-PR;ML-3560,PPS,RBA313N,¡Ë8.3,-,13S		NA	
8.4-3-3	6107-001253	SPRING-CS;SUS304,GRINDING,PI1.6,D9,L15.2		SNA	
8.4-3-4	JC63-00725A	COVER-M-FU_LOWER_OPEN;ML-3560,PET+GF30%,		SNA	
8.4-3-5	JC66-00880A	LEVER-P-RELEASE_L;ML-3560,SECC,T1.6,-,89		SNA	
8.4-3-6	6107-001172	SPRING-CS;SUS304,-,PI0.5,D6.7,L17.5,-,-,		SA	
8.4-3-7	JC67-00102A	CAP-M-FUSER LOCK;ML-3560,PC, NH-1023XD,T		SNA	
8.4-3-8	JC66-00881A	LEVER-P-RELEASE_R;ML-3560,SECC,T1.6,43.4		SNA	
8.4-3-9	JC61-01214A	HOLDER-M-PR SHAFT;ML-3560,PPS, RBA313N,T		SNA	
8.4-3-10	JC63-00683A	GROUND-P-HR;ML-3560,SUS304,T0.2,13.3,51.		SNA	
8.4-3-11	JC61-70903A	SPRING ETC-ACTUATOR;ML-165,SUS304,PI0.2,	Z4132	SA	
8.4-3-12	JC72-01358A	PMO-ACTUATOR EXIT;ML-3560,PC+GF20%,HF320		SNA	
8.4-3-13	JC67-00103A	CAP-M-ACTUATOR;ML-3560,PC+GF20%,HF3201,T		SNA	
8.4-3-14	6006-001078	SCREW-TAPTITE;WSP,PH,+,M3,L10,ZPC(YEL),S		SNA	
8.4-4	JC97-02235A	MEA UNIT-FUSER_GU_R;ML-3560,XEROX,USA,ME		SNA	
8.4-4-1	JC61-01226B	GUIDE-M_REAR;ML-3560,HIPS,2.5,98,100.3,B		SNA	
8.4-4-2	JC72-00382A	PMO-BUSHING TX;ML-6060A,POM M9044,BLK,-,		SNA	
8.4-4-3	JC66-00879A	SHAFT-M-EXIT_F_UP;ML-3560,PC,5V,NH-1035P		SNA	
8.4-4-4	JC66-00854A	GEAR-M-EXIT DUP Z21;ML-3560,POM,1,21,-,W	G0200	SA	
8.4-4-5	JC73-00209A	RUBBER-EXIT_F_UP;ML-3560,EPDM,D17.6X15.5		SNA	
8.4-4-6	JC61-01549A	HOLDER-M REAR_LEVER;ML-3560,PC,NH-1023XD		SNA	
8.5 REGI Assembly					
8.5-0	JC96-03665A	ELA UNIT-REGI;ML-3560,XEROX,-,REGI,-,-,-	K3142	SA	
8.5-1	JC61-00674A	GUIDE-P_REGI LOWER;ML-2150,SECC,1.2,-,-,	G2080	SA	
8.5-2	JC66-00450A	ROLLER-REGI LOWER L;ML-2150,CR,13.85,-,B		SNA	
8.5-3	JC66-00446A	SHAFT-REGI UPPER;ML-2150,SUM22,-,6,-,-,-	Z6227	SA	
8.5-4	JC66-00647A	ROLLER-M_REGI IDLE L25;ML-2150,POM,12.4,	K4220	SA	
8.5-5	JC66-00648A	ROLLER-M_REGI IDLE S25;ML-2150,POM,11.9,	K4221	SA	
8.5-7	6107-001158	SPRING-TS;SUS304-WPB,-,PI0.4,D6.7,-,-,-,		SA	
8.5-8	JC72-00998A	PMO-ACTUATOR REGISHUTTER;ML-2150,ABS G/F	S6005	SA	
8.5-9	JC61-00670A	GUIDE-P_REGI PLATE;ML-2150,SECC,1.2,-,-,	G2081	SA	
8.5-10	JC75-00095A	MEC-BRUSH ANTISTATIC;ML-6060A,SEC,NTR	B5010	SA	
8.5-11	JC61-00669A	BUSH-M-ROLLER REGI U;ML-2150,POM(CE20),6	K2885	SA	
8.5-12	JC66-00420A	GEAR-REGI Z25;ML-2150,M90-44,0.8,25,5.6,	G0415	SA	
8.5-13	JC61-00669A	BUSH-M-ROLLER REGI U;ML-2150,POM(CE20),6	K2885	SA	
8.5-14	6107-001155	SPRING-ES;SWP-B,-,PI0.55,-,L25,-,-,-,OD4		SA	
8.6 Main Motor Assembly					
8.6-0	JC96-03409A	ELA UNIT-MAIN MOTOR;ML-3560,XOG/SEC,USA,	K3140	SA	
8.6-1	JC61-01204A	BRACKET-P-MAIN;ML-3560,SECC,1.2,144.73,2		SNA	
8.6-2	JC31-00040A	MOTOR DC-BLDC MAIN;-,ML-3560,2.3A,-,-,21	B5013	SA	
8.6-3	6031-001255	WASHER-PLAIN;NYLON,CUTTING,ID5,OD9,T0.5,		SA	
8.6-4	JC66-00867A	GEAR-M-OPC DRV;ML-3560,POM,0.8/0.5,31/11		SNA	
8.6-5	JC66-00864A	GEAR-M-REGI DRV;ML-3560,POM,0.8,31,-,WHT		SNA	

Service: SA(Service Available), SNA(Service not Available)

Draw # (Section-No.)	Parts Code	Description	Qt'y	Service	Remark
8.6-6	JC66-00860A	GEAR-M-RDCN FUSER;ML-3560,POM,1/0.5,29/8		SNA	
8.6-7	JC66-00875A	GEAR-M-FUSER IDLE 1;ML-3560,POM,1,43,-,W		SNA	
8.6-8	JC66-00865A	GEAR-M-RDCN REGI;ML-3560,POM,0.8/0.5,23/		SNA	
8.6-9	JC66-00866A	GEAR-M-RDCN PICK UP;ML-3560,POM,0.8/0.8,		SNA	
8.6-10	JC66-00861A	GEAR-M-MP DRV;ML-3560,POM,0.8,31,-,WHT,2		SNA	
8.6-11	JC66-00862A	GEAR-M-FEED DRV;ML-3560,POM,0.8/0.8,37/4		SNA	
8.6-12	JC66-00873A	GEAR-M-RDCN MP;ML-3560,POM,0.8,19/28,-,W		SNA	
8.6-13	JC66-00874A	GEAR-M-RDCN RETARD;ML-3560,POM,0.8/0.8,1		SNA	
8.6-14	JC66-00863A	GEAR-M-PICK UP DRV;ML-3560,POM,0.8,34,-,		SNA	
8.7 Deve Motor Assembly					
8.7-0	JC96-03408A	ELA UNIT-DEVE MOTOR;ML-3560,XOG/SEC,USA,	K3057	SA	
8.7-1	JC31-00039A	MOTOR DC-BLDC DEVE;-,ML-3560,2.0A(MAX.),	B5012	SA	
8.7-2	JC61-01201A	BRACKET-P-DEVE;ML-3560,SECC,1.2,126.5,73		SNA	
8.7-3	JC61-01203A	BRACKET-P-SWING;ML-3560,SECC,1.0,27.0,42		SNA	
8.7-4	JC66-00915A	SHAFT-SWING DEVE;ML-3560,SUM24L+NI,20.6,		SNA	
8.7-5	JC66-00871A	GEAR-M-RDCN DEVE;ML-3560,POM,0.5/0.8,51/		SNA	
8.7-6	JC66-00857A	GEAR-M-SWING;ML-3560,POM,0.8,31,-,WHT,26		SNA	
8.8 Exit Sorenoid Assembly					
8.8-0	JC96-03426A	ELA UNIT-EXIT SOL;ML-3560,XOG/SEC,USA,UN	K3059	SA	
8.8-1	JC61-01205A	BRACKET-P-EXIT;ML-3560,SECC,1.2,82.0,76.		SNA	
8.8-2	JC66-00426B	GEAR-IDLE 23;ML-3560,HTNFR,1.0,23,8,BLAC	G0199	SA	
8.8-3	JC66-00869A	GEAR-M-IDLE 25;ML-3560,POM,1,25,-,WHT,27		SNA	
8.8-4	JC66-40911A	GEAR-DP,IDLE;ML-165,POM,M1.0,Z21,-,WHITE	G0198	SA	
8.8-5	JC66-00100A	GEAR-6;ML-9400W,POM,1,,PCD19,WHITE,,		SNA	
8.8-6	6031-001255	WASHER-PLAIN;NYLON,CUTTING,ID5,OD9,T0.5,		SA	
8.8-7	JC66-00100A	GEAR-6;ML-9400W,POM,1,,PCD19,WHITE,,		SNA	
8.8-8	JC33-00008A	SOLENOID-DUPLEX;-,SCX-5312F,-,24VDC,53*3	S8014	SA	
8.8-9	JC61-01202A	BRACKET-P-LINK SWING;ML-3560,SECC,1.2,40		SNA	
8.8-10	JC66-00855A	GEAR-M-SWING DUPLEX;ML-3560,POM,1,19,-,W		SNA	
8.8-11	JC66-00856A	GEAR-M-RDCN EXIT;ML-3560,POM,1/1,27/31,-		SNA	
8.8-12	JC66-00916A	SHAFT-SWING DUPLEX;ML-3560,SUM24L+NI,22.		SNA	
8.9 Cassette Assembly					
8.9-0	JC96-03418B	ELA UNIT-CASSETTE;ML-3560,SEC,-,110V/220	K3055	SA	
8.9-1	JC61-01220B	FRAME-M_CASSETTE;ML-3560,HIPS,HR-1360T,H		SNA	
8.9-2	JC61-01221B	GUIDE-M_HANDLE;ML-3560,ABS,2.5,103.7,396		SNA	
8.9-3	JC64-00189B	INDICATOR-M_EMPTY;ML-3560,ABS,2.5,GRAY,H		SNA	
8.9-4	JC61-01245A	PLATE-P-KNOCK UP;ML-3560,SECC,1.2,279.1,		SNA	
8.9-5	JC61-00455A	SPRING ETC-PLATE K/UP;SCX-5100,SUS304,24	Z4228	SA	
8.9-6	JG66-40003A	GEAR-PINION;SF4000,POM,WHT,M1,Z16	G0367	SA	
8.9-7	JC67-00037A	CAP-M-GUIDE SIDE,L;ML-2150,POM,-,-,-,BLK	C1014	SA	
8.9-8	JC61-01222A	GUIDE-P-SIDE_L;ML-3560,SECC,1.2,127,129,		SNA	
8.9-9	JC61-01225B	GUIDE-M_SIDE LOCK;ML-3560,ABS,2.5,72.8,1		SNA	
8.9-10	JC61-01244A	GUIDE-P-SIDE_R;ML-3560,SECC,1.2,130,120.		SNA	
8.9-11	JC61-01226B	GUIDE-M_REAR;ML-3560,HIPS,2.5,98,100.3,B		SNA	
8.9-12	JC61-00751A	GUIDE-P-REAR PAPER CST;ML-2060,SUS-301,0	G2088	SA	
8.9-13	JC61-00414A	SPRING ETC-GUIDE PAPER;ML-9400W,SUS304WP	Z4247	SA	
8.9-14	JC61-00267B	GUIDE-M-LOCK A;ML-2150,HIPS,HB,-,-,-,C75	G2068	SA	
8.9-15	JC61-01226B	GUIDE-M_REAR;ML-3560,HIPS,2.5,98,100.3,B		SNA	
8.9-16	JC61-01224B	GUIDE-M_EXTENSION CST;ML-3560,HIPS,2,56,		SNA	
8.9-17	JC61-01223A	BRACKET-P-EXTENTION;ML-3560,SECC,1.2,41,		SNA	
8.9-18	JC61-01230B	GUIDE-M_PAPER;ML-3560,PC/ABS,2.5,48.7,24		SNA	
8.9-19	JC61-01228A	HOLDER-M-PAD_HOUSING;ML-3560,ABS,2.5,48,		SNA	
8.9-20	JC97-02234A	MEA UNIT-HOLDER PAD;ML-3560,XEROX,-,110V	G0469	SA	
8.9-20-1	JC61-01229A	HOLDER-M-PAD;ML-3560,ABS,2.5,12.7,51,BLA		SNA	
8.9-20-2	JC63-00407A	SHEET-HOLDER PAD R2;SCX-4920N,PC,0.125T,		SNA	
8.9-20-3	JC73-00140A	RPR-FRICTION PAD;ML-1510,NBB,1T 8.9*47,5	P0034	SA	
8.9-20-4	JC70-00314A	IPR-PLATE PAD;ML-1710,SUS304-CSP,-,0.1,-	P0009	SA	
8.9-21	JC61-70911A	SPRING ETC-EXIT ROLL FD;ML-165,SUS304 WP	Z4137	SA	
8.9-25	JC72-41210A	PMO-LOCKER PLATE;ML-6000,POM,WHT,HB,-	L6038	SA	
8.9-26	JG61-70531A	SPRING ETC-LOCKER,PLATE;SF6000,STS304WPB	Z4215	SA	
8.9-27	JC61-01227A	GUIDE-M-PAPER SIZE;ML-3560,POM,2.5,71.5,		SNA	
8.10 SCF Unit					
8.10-0	JC96-03423B	ELA UNIT-SCF		411	
8.10-1	JC61-01247B	FRAME-M-SCF		412	
8.10-2	JC63-00688B	COVER-M-RIGHT_SCF		413	
8.10-3	JC63-00687B	COVER-M-LEFT_SCF		414	
8.10-4	JC63-00686A	COVER-M-DUMMY_SCF		415	

Service: SA(Service Available), SNA(Service not Available)

Draw # (Section-No.)	Parts Code	Description	Qt'y	Service	Remark
8.10-5	JC92-01703A	PBA SCF		416	
8.10-6	JB39-40532A	CBF HARNESS-OP		417	
8.10-8	JC61-00804A	BUSH-CABLE		418	
8.10-9	JC39-00357A	CBF HARNESS-SCF INTERFACE		419	
8.10-10	JC33-00012A	SOLENOID-MAIN		420	
8.10-11	JC96-03405A	BRACKET-P-SCF_MOTOR		421	
8.10-11-1	JC61-01219A	BRACKET-P-SCF_MOTOR		422	
8.10-11-2	JC31-00002A	MOTOR STEP-7.5_DEG		423	
8.10-11-3	JC66-00885A	GEAR-M SCF-RDCN RETARD		424	
8.10-11-4	JC66-00886A	GEAR-M SCF_RDCN FEED		425	
8.10-11-5	JC66-00884A	GEAR-M SCF_RDCN PICK UP		426	
8.10-12	JB39-40532A	CBF HARNESS-OP		427	
8.10-13	JC70-00464A	IPR-GROUND SPRING_FEED		428	
8.10-14	JC72-41191B	PMO-BEARING-SHAFT		429	
8.10-15	JC47-00009B	MEP-CLUTCH FEED SCF		430	
8.10-16	6044-000125	RING-E		431	
8.10-17	JC66-00441A	SHAFT-M-COUPLING RETARD S		432	
8.10-18	JC66-00890A	SHAFT-M-GEAR_RETARD		433	
8.10-19	JC66-00420A	GEAR-REGI Z25		434	
8.10-20	JC71-00042A	BAR-P_CROSS BOTTOM		435	
8.10-21	JC72-01355A	PMO-REMOVE_LOCK_CST		436	
8.10-22	JC96-03424A	ELA UNIT-RETARD SCF		437	
8.10-22-1	6044-000231	RING-E		438	
8.10-22-2	6107-001157	SPRING-TS		439	
8.10-22-3	JC61-00013A	SPRING ETC-PAD		440	
8.10-22-4	JC61-00635A	HOUSING-M-RETARD		441	
8.10-22-5	JC61-00638A	HOLDER-M-RETARD		442	
8.10-22-6	JC61-00652A	BUSH-M-RETARD		443	
8.10-22-7	JC66-00590A	SHAFT-RETARD		444	
8.10-22-8	JC66-00591A	SHAFT-HUB IN		445	
8.10-22-9	JC72-00993A	PMO-HUB OUT RETARD		446	
8.10-22-10	JC72-00994A	PMO-HUB IN RETARD		447	
8.10-22-11	JC61-01246A	FRAME-M-RETARD_SCF		448	
8.10-22-12	JC73-00207A	RUBBER-RETARD		449	
8.10-23	JC72-01360A	PMO-M DUMMY-SCF_LEFT		450	
8.10-24	JC72-01363A	PMO-M DUMMY-SCF_RIGHT		451	
8.10-25	JC66-00914A	SHAFT-PICK UP_SCF		452	
8.10-26	JC66-00913A	SHAFT-FEED1_SCF		453	
8.10-27	JC92-01686A	PBA SCF COVER OPEN		454	
8.10-28	JC96-02127A	ELA HOU-CSTSENSOR HAWK1		455	
8.10-29	0604-001095	PHOTO-INTERRUPTER		456	
8.10-30	JC72-00992A	PMO-ACTUATOR EMPTY,SCF		457	
8.10-31	JC66-00534A	GEAR-SCF PICK_UPCAM		458	
8.10-32	JC61-40001A	FOOT-ML80		459	
8.10-33	JC70-11028A	IPR-GROUND TOP		460	
8.10-34	JC97-02233A	MEA UNIT-PICK UP HOU		461	
8.10-34-1	JC72-01361A	PMO-M IDLE-PICK UP		462	
8.10-34-2	JC73-00223A	RUBBER-PICK UP		463	
8.10-34-3	JC61-01238A	RUBBER-PICK UP		464	
8.10-35	JC72-00382B	PMO-BUSHING FEED		465	
8.10-36	JC72-01364A	PMO-M DUMMY_SHAFT		466	
8.10-37	6107-001214	SPRING-ES		467	
8.10-38	JC81-03458A	AS-FEED1 ROLLASS'Y		468	
8.10-38-1	JC61-01237A	HUOUSIN-M_FEED1		469	
8.10-38-2	JC73-00208A	RUBBER-FEED1		470	
8.10-40	JC39-00355A	CBF HARNESS-MOTOR		471	
8.10-41	JC39-00446A	CBF HARNESS-SCF EMPTY		472	
8.10-42	JC39-00447A	CBF HARNESS-SCF CASSETTE		473	
8.10-43	JC39-00448A	CBF HARNESS-SCF P-SIZE		474	
8.11 Duplex Unit					
8.11-0	JC96-03412B	ELA UNIT-DUPLEX		475	
8.11-1	JC61-01254A	FRAME-M-DUPLEX		476	
8.11-2	JC61-01255A	GUIDE-M-UPPER_DUP		477	
8.11-3	JC63-00693B	COVER-M-REAR_DUP		478	
8.11-4	JC61-01256A	GUIDE-M-ALIGN_DUP		479	
8.11-5	JC67-00107A	CAP-M-CONNECTOR_DUP		480	
8.11-6	JC67-00106A	DUCT-M-FAN_DUP		481	
8.11-7	JC31-00004A	FAN-DC_HAWK		482	
8.11-8	JC92-01679A	PBASUB-DPX_SCF		483	
8.11-9	6502-000132	CABLE CLAMP		484	

Service: SA(Service Available), SNA(Service not Available)

Draw # (Section-No.)	Parts Code	Description	Qt'y	Service	Remark
8.11-10	JC70-00512A	IPR-TERMINAL GND_DUP		485	
8.11-11	JC64-00191A	LOCKER-M-DUP		486	
8.11-12	JC63-00706A	SHEET-FRAME_DUP		487	
8.11-13	6107-001165	SPRING-TS		488	
8.11-14	JC72-01366A	PMO-ACTUATOR FEED DUP		489	
8.11-15	JC92-01362A	PBA SUB-MPSEN		490	
8.11-16	JB39-00103A	CBF HARNESS-POWER GND		491	
8.11-17	JC31-00009A	MOTOR STEP		492	
8.11-18	JC61-01257A	BRACKET-P-MOTOR_DUP		493	
8.11-19	JC66-00897A	PULLEY-M-30_DUP		494	
8.11-20	6602-001084	BELT-TIMING GEAR		495	
8.11-21	JC66-00898A	PULLEY-M-30-DUMMY_DUP		496	
8.11-22	6044-000231	RING-E		497	
8.11-23	JC39-00450A	CBF HARNESS-D_JOINT		498	
8.11-24	JC66-00444A	SHAFT-IDLE ROLL, DUP		499	
8.11-25	JC66-00896A	ROLLER-M-IDLE_ DUP		500	
8.11-26	JK72-00058A	PCT-SILP WASHER		501	
8.11-27	JC61-01277A	SPRING ETC-DUP		502	
8.11-28	JC66-00900A	PULLEY-M-18-DUMMY_DUP		503	
8.11-29	JC66-00899A	PULLEY-18_DUP		504	
8.11-30	JC61-00665A	BUSH-M-FEED, DUP		505	
8.11-31	JC66-20901A	BELT-TIMMING		506	
8.11-32	JC66-00901A	ROLLER-FEED_DUP		507	
8.11-33	6044-000107	RING-C		508	
8.11-34	JC70-00457A	ICT-STUD PAPER GUIDE, DP		509	
	6003-000269	SCREW-TAPTITE;BH,+,-,S,M3,L6,ZPC(YEL),SW	F1017	SA	
	6003-001256	SCREW-TAPTITE;BH,+,B,M4,L10,NI PLT,SWRCH		SNA	
	JC68-00761A	MANUAL-REGISTER(US);COMMON,SEA,ENGLISH,U		SNA	
	JC68-01613A	MANUAL-QIG;ML-3560,SAMSUNG,14LANGUAGE,-,		SNA	
	JC69-00817A	BOX(P)-MAIN KESTREL;ML-3560,DW,A-1,-,-,-		SA	
	JC96-01815D	ELA ETC-SUBSIDIARY;ML-2150,SEC,110V,-,-,		SNA	
	JC96-03404A	ELA HOU BASE-FRAME;ML-3560,XEROX,-,110V/		SNA	
	JC96-03627A	ELA HOU-SMPS_HVPS_V1;ML-3560,XEROX,-,110		SA	
	JC99-01868A	PAA WOOD-PACKING;ML-3560,SEC,-,PACKING M		SNA	
	JC99-01869A	PAA WOOD-LABEL;ML-3560,SEC,LABEL,-,-,-		SNA	
	JC99-01915A	INA-ACCESSORY_XAA;ML-3560,SAMSUNG,XAA,-,		SNA	
	0105-000101	PAPER-ART;75G,W216,-,WHITE,XEROX 3R2047,		SNA	
	0202-000008	SOLDER-WIRE;HI-FLO,3.0,-,D3.0,63SN/37PB,		SNA	
	0202-000137	SOLDER-WIRE FLUX;KR-19 RMA SF,-,D0.7,60S		SNA	
	0202-001025	FLUX;KS-611,-,-,-,SPRAY		SNA	
	0203-000007	TAPE-FILAMENT;3M,T0.15,W18,L55M,TRP		SNA	
	0203-001100	TAPE-OPP MASKING;OPP/W75/CLR,T0.05,W75,L		SNA	
	0204-000469	THINNER;#4662,-,0.795,-		SNA	
	0205-001003	GREASE-BEARING;NYOGEL788,DAMPING GREASE,		SNA	
	0502-001048	TR-POWER;KSD1691,NPN,1.3W,TO-126,BK,160		SA	
	2401-000880	C-AL;220uF,20%,50V,WT,TP,10x16mm,5m		SA	
	2401-001185	C-AL;33uF,20%,35V,GP,TP,5x11,5		SNA	
	2801-003376	CRYSTAL-UNIT;0.032768MHZ,20PPM,28-AAY,12		SNA	
	2801-003886	CRYSTAL-UNIT;12MHz,50ppm,28-AAA,16pF,50o		SNA	
	3702-000118	CONNECTOR-RIBBON;36P,FEMALE,ANGLE,AU		SNA	
	3702-001158	CONNECTOR-RIBBON;60,FEMALE,STRAIGHT,AU		SA	
	3709-001131	CONNECTOR-CARD EDGE;100P,1.27MM,STRAIGHT		SNA	
	3711-002000	HEADER-BOARD TO CABLE;BOX,18P,2R,2mm,STR		SNA	
	3711-002807	HEADER-BOARD TO CABLE;BOX,6P,1R,2mm,STRA		SNA	
	3711-002808	HEADER-BOARD TO CABLE;BOX,7P,1R,2mm,STRA		SNA	
	3711-002809	HEADER-BOARD TO CABLE;BOX,8P,1R,2mm,STRA		SA	
	3711-002811	HEADER-BOARD TO CABLE;BOX,10P,1R,2mm,STR		SNA	
	3711-003981	HEADER-BOARD TO CABLE;BOX,28P,2R,2mm,STR		SA	
	3722-000124	JACK-DIN;8P,-,AU,BLK,-		SNA	
	3722-002303	JACK-USB;4P/1C,AU30U,BLK,ANGLE,B TYPE		SA	
	3903-000085	CBF-POWER CORD;DT,US,BP3/YES,I(IEC C13/C		SA	
	6001-000130	SCREW-MACHINE;BH,+,M3,L6,ZPC(WHT),SWRCH1	-	SA	
	6001-000568	SCREW-MACHINE;PH,+,M3,L8,NI PLT,SWRCH18A		SA	
	6002-000440	SCREW-TAPPING;RWH,+,2,M3,L8,ZPC(BLK),SWR		SA	
	6003-000264	SCREW-TAPTITE;PWH,+,B,M3,L6,ZPC(YEL),SWR		SNA	
	6003-000266	SCREW-TAPTITE;PWH,+,S,M3,L6,ZPC(YEL),SWR		SNA	
	6003-000301	SCREW-TAPTITE;BH,+,S,M4,L6,ZPC(YEL),SWRC		SNA	
	6006-001193	SCREW-MACHINE;WSP,PH,+,M3,10,ZPC(YEL),SW		SNA	
	6021-001194	NUT-SQUARE;-,M3,PASS,SWCH+ZN COATING,SQU		SNA	
	6044-000001	RING-CS;ID3,OD3,T0.25,BLACK,SUS304	D4088	SNA	
	6107-001170	SPRING-TS;SWP-B,-,PI0.9,D6.0,-,-,-,ID5.2		SA	

Service: SA(Service Available), SNA(Service not Available)

Draw # (Section-No.)	Parts Code	Description	Qt'y	Service	Remark
	6902-000288	BAG PE;LDPE,T0.05,W250,L450,TRP,8,2-		SNA	
	6902-000321	BAG PE;HDPE,T0.015,W800,L1300,TRP,28,6M-		SNA	
	JB68-00072A	LABEL(R)-BAR RIBON;SF-3000,PY,80X91000,T		SNA	
	JB68-00073A	LABEL(R)-BAR CODE;SF-3000,PY,38X6.5,T0.1		SNA	
	JB68-00916A	LABEL RATING-BLANK;SF-340,SEC,TETRON,0.0		SNA	
	JC31-00027A	FAN-DC_HUMMINGBIRD;-,ML-1710,-,-,-	F5019	SA	
	JC31-00046A	FAN-SMPS;AD0305HB-K91,ML-3560,-,-,-	F5020	SA	
	JC39-00435A	CBF HARNESS-SMPS;ML-3560,CBF,UL 1061,28P	H1255	SA	
	JC39-00437A	CBF HARNESS-CART;ML-3560,CBF,UL 1061,14P	H1243	SA	
	JC39-00438A	CBF HARNESS-DEV MOTOR;ML-3560,CBF,UL 106	H1246	SA	
	JC39-00445A	CBF HARNESS-DC_MOTOR;ML-3560,CBF,UL 1061	H1245	SA	
	JC46-00244A	S/W APPLICATION-CD;-,ML-3560 ,DRV,1.00,1		SNA	
	JC61-01211A	GUIDE-P-TRANSFER;ML-3560,SECC,0.6,242,64		SNA	
	JC61-01243A	HOLDER-M-PICK_UP;ML-3560,POM,1.5,16,26.7		SNA	
	JC61-01553A	BRACKET-P-FAN_SMPS;ML-3560,SECC,T1.2,22.		SNA	
	JC61-01611A	HOLDER-P-DAMPER;ML-3560,SECC,1.6,25,32.1	P2063	SA	
	JC61-70915A	SPRING ETC-SOLENOID DP;ML-165,SUS304-WPB	S8015	SA	
	JC62-00157A	INSULATION-SMPS;ML-3560,PC,0.43,W219,L25		SNA	
	JC63-00459A	SHEET-SCAN LOWER;SCX-4100,PET,T0.188,-,-		SNA	
	JC63-00675A	GROUND-P-PAPER_SIZE;ML-3560,C5210P,T0.2,		SNA	
	JC63-00707A	SHEET-SMPS_SMALL;ML-3560,PC,0.4T,6.2,51.		SNA	
	JC63-00875A	GROUND-P-BRUSH;ML-3560,C5210P,T0.2,14.4,		SNA	
	JC63-00911A	SHEET-GUIDE PATH;ML-3560,PC,T0.254,21,84		SNA	
	JC64-00190B	KNOB-M_REAR;ML-3560,HIPS,2.5,24.7,44.7,H		SNA	
	JC66-00377A	CAM-M-PICK_UP;ML-1710,POM(DELIN 8903),-,	P2042	SA	
	JC66-00852A	GEAR-M-FEED 2;ML-3560,POM,0.8,27,-,BLK,2		SNA	
	JC66-00853A	GEAR-M-RETARD IDLE;ML-3560,POM,0.8,18,-,		SNA	
	JC66-00877A	LEVER-M-BRACKET_SWING;ML-3560,POM M90-44		SNA	
	JC66-01151A	DAMPER-PICK UP;ML-3560,NBR,-,19,13.7,20.		SNA	
	JC68-00573A	LABEL(R)-BARCODE;ML-4500,PET,T0.05,10mm,		SNA	
	JC68-00690A	MANUAL-(CARD)WARRANTY CARD;ML-1210,XEU,E		SNA	
	JC68-00761B	MANUAL-REGISTRATION CARD;COMMON,XAC,FREN		SNA	
	JC68-00761C	MANUAL-SERVICE CARD;COMMON,XAC,FRENCH,CA		SNA	
	JC68-00761D	MANUAL-REGISTRATION;COMMON,XAA,FRENCH,CA		SNA	
	JC68-01552A	LABEL(R)-CASSETTE;COMMON,SAMSUNG,WHITE P		SNA	
	JC68-01584A	LABEL(P)-BLANK 90*25;CLP-510,SEE,ART 100	S3062	SA	
	JC68-10932A	LABEL(P)-BLANK(ML);ML-85,ART,70X60,G100,		SNA	
	JC68-30587A	LABEL(R)-CUSTOMER;COMMON,PE,-,T0.075,-,,		SNA	
	JC69-00749A	CUSHION-MAIN KESTREL;ML-3560,EPS,-,-,-,-		SA	
	JC69-00860A	CUSHION-SCF IN;ML-3560,PE FOAM,-,15,255,		SNA	
	JC72-00463A	PMO-CAP CONNECTOR L;ML-6060A,POM,BLACK,-	Z0013	SA	
	JC72-00465A	PMO-CAP CONNECTOR U;ML-6060A,POM,BLACK,-	Z0014	SA	
	JC72-01354A	PMO-DUMMY-PATH;ML-3560,PC,BLK,190.9*51.2	Z0017	SA	
	JC73-00141A	RPR-PAD CASSETTE;ML-1510,URETHANE SPONGE	C4019	SA	
	JC92-01516A	PBA SUB-PTL2;ML-2150,SEC,KOREA,PTL2,-,-,	M0411	SA	
	JC94-00873A	PHANTOM AU JC92-01657C		SNA	
	JC96-01579A	ELA HOU-MOTOR GND;SF-5100,HANSUNG,100Moh	Z2265	SA	
	JC96-03376A	ELA UNIT-DEVE KIT;ML-3560,SAMSUNG,-,6K,-		SNA	
	JC96-03656A	ELA UNIT-200MOHM;ML-3560,SEC,200MOHM,-,-		SNA	
	JC97-02388B	MEA UNIT-COVER RIGHT;ML-3560,SEC,-,110V/	E4064	SA	
	JC97-02389B	MEA UNIT-COVER DUMMY;ML-3560,SEC,-,110V/	E4061	SA	
	JF68-10532B	LABEL(P)-BAR CODE;CLP-500,-,YUPO PAPER,1		SNA	
	JK75-10008A	MEC-BARCODE;ECR,-,BLK		SNA	
	0105-001032	PAPER-ART;-,W210,-,WHITE,HANSOL,L297		SNA	
	0201-001183	ADHESIVE-AA;ARON ALPHA #202F,NTR,100,20G		SNA	
	0201-001235	ADHESIVE-TS;DEH-390D,RED,400,-		SNA	
	0202-000108	SOLDER-CREAM;RMA-20-21L,-,20~38 §-,62.8SS		NA	
	0203-001235	TAPE-PAPER;YW-692,T0.15,W5.8,L4000M,-		SNA	
	0203-001236	TAPE-PAPER;YW-4620,T0.12,W6.2,L4000M,-		SNA	
	0205-001059	GREASE-BEARING;PETAMO GHV 133,BEIGE,15KG		SNA	
	0205-001067	GREASE-GRAPHITE;NYOGEL 756G,HYDRO CARBON		SNA	
	0205-001080	GREASE-BEARING;NYOGEL 774H,NOISE DAMPING		SNA	
	0403-000433	DIODE-ZENER;ZPU150,130-165V,1300MW,DO-41		SA	
	0403-000716	DIODE-ZENER;MTZJ4.7B,4.59-4.77V,500MW,DO		SNA	
	0403-001440	DIODE-ZENER;1N5956BRL/BZY97-C200,188-212		SNA	
	0404-000112	DIODE-SCHOTTKY;RB420D,40V,100MA,SOT-23,T		SA	
	0407-000122	DIODE-ARRAY;KDS226,80V,300mA,C2-3,SOT-23		SA	
	0501-000342	TR-SMALL SIGNAL;KSC1623-Y,NPN,200mW,SOT-		SA	
	0604-000165	PHOTO-INTERRUPTER;TR,-,-,-,BK	K3805	SA	
	0604-001210	PHOTO-INTERRUPTER;TR,-,200mW,DIP-4,ST		SNA	
	0801-000794	IC-CMOS LOGIC;7S08,AND GATE,SOT-25,5,63M		SA	

Service: SA(Service Available), SNA(Service not Available)

Draw # (Section-No.)	Parts Code	Description	Qt'y	Service	Remark
	0904-001989	IC-USC;ISP1582BS,-,HVQFN56,56P,8X8X0.85M		SA	
	1006-001224	IC-LINE TRANSCEIVER;74LVX161284,TSSOP,48		SA	
	1105-001357	IC-DRAM;K4S281632,4X2MX16BIT,TSOP(II),54		SA	
	1107-001549	IC-FLASH MEMORY;K9F5616U0C,16MX16BIT,TSO		SA	
	1202-000164	IC-VOLTAGE COMP.;393,SOP,8P,150MIL,DUAL,		SA	
	1203-002233	IC-RESET;XC61F,SOT-23,3P,-,PLASTIC,0.7/1		SNA	
	1203-003739	IC-DC/DC CONVERTER;MVPG31,DFN,12P,4X3MM,		SNA	
	1205-002339	IC-CLOCK GENERATOR;CY25811SC,SOIC,8P,150		SA	
	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608		SA	
	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608		SA	
	2007-000076	R-CHIP;330ohm,5%,1/10W,TP,1608		SA	
	2007-000082	R-CHIP;3.3Kohm,5%,1/10W,TP,1608		SA	
	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608		SA	
	2007-000086	R-CHIP;5.6Kohm,5%,1/10W,TP,1608		SA	
	2007-000094	R-CHIP;22Kohm,5%,1/10W,TP,1608		SA	
	2007-000105	R-CHIP;200Kohm,5%,1/10W,TP,1608		SA	
	2007-000106	R-CHIP;220Kohm,5%,1/10W,TP,1608		SA	
	2007-000107	R-CHIP;470Kohm,5%,1/10W,TP,1608		SA	
	2007-000109	R-CHIP;1Mohm,5%,1/10W,TP,1608		SA	
	2007-000113	R-CHIP;33ohm,5%,1/10W,TP,1608		SA	
	2007-000123	R-CHIP;1.5Kohm,5%,1/10W,TP,1608		SA	
	2007-000309	R-CHIP;10ohm,5%,1/10W,TP,1608		SA	
	2007-000965	R-CHIP;5.1Kohm,5%,1/10W,TP,1608		SA	
	2007-001002	R-CHIP;510ohm,5%,1/10W,TP,1608		SA	
	2007-001044	R-CHIP;56ohm,5%,1/10W,TP,1608		SNA	
	2007-001139	R-CHIP;7.5Kohm,1%,1/10W,TP,1608		SNA	
	2007-002901	R-CHIP;12.1Kohm,1%,1/10W,TP,1608		SA	
	2007-007239	R-CHIP;31.6Kohm,1%,1/10W,TP,1608		SA	
	2007-007521	R-CHIP;14.7Kohm,1%,1/10W,TP,1608		SA	
	2007-008371	R-CHIP;280KOHM,1%,1/10W,TP,1608		SNA	
	2007-008567	R-CHIP;15.4KOHM,1%,1/10W,TP,1608		SNA	
	2011-000002	R-NET;22OHM,5%,1/16W,L,CHIP,8P,TP,3216		SA	
	2011-000651	R-NET;10ohm,5%,1/16W,L,CHIP,8P,TP,3216		SA	
	2011-001011	R-NET;10Kohm,5%,1/16W,L,CHIP,8P,TP,3.2x1		SNA	
	2011-001334	RC-NETWORK;1K/5.1K/39ohm,10%,150pF,-,6V,		SNA	
	2203-000041	C-CER,CHIP;0.01nF,0.25pF,50V,C0G,1608		SA	
	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,1608		SA	
	2203-000384	C-CER,CHIP;0.015nF,5%,50V,C0G,1608		SA	
	2203-000426	C-CER,CHIP;0.018nF,5%,50V,C0G,1608		SA	
	2203-000491	C-CER,CHIP;2.2nF,10%,50V,X7R,TP,1608,-		SA	
	2203-005249	C-CER,CHIP;100nF,10%,50V,X7R,TP,1608,-		SNA	
	2203-006474	C-CER,CHIP;22000nF,20%,6.3V,X5R,2012		SA	
	2203-006646	C-CER,CHIP;10000nF,10%,6.3V,X5R,2012		SA	
	2402-001042	C-AL,SMD;100uF,20%,16V,GP,TP,6.6x6.6x5.4		SA	
	2402-001049	C-AL,SMD;10uF,20%,16V,GP,TP,3.3x3.3x5.4		SA	
	2503-001023	C-NETWORK;47PFX4,10%,50V,3216		SNA	
	2703-002055	INDUCTOR-SMD;2.2UH,20%,6363		SNA	
	2901-001178	FILTER-EMI SMD;25V,2A,-,100000pF,2x1.25x		SA	
	3301-000317	BEAD-SMD;120ohm,2012,TP,-,-		SA	
	3301-000325	BEAD-SMD;60ohm,3.2x2.5x1.3mm,400mA,TP,,,		SNA	
	3405-001048	SWITCH-MICRO;125V,5A,64gf,SPDT		SA	
	3405-001073	SWITCH-MICRO;125V,5A,40GF,SPDT		SNA	
	3711-002810	HEADER-BOARD TO CABLE;BOX,9P,1R,2mm,STRA		SNA	
	3711-003408	HEADER-BOARD TO CABLE;BOX,2P,1R,2mm,STRA		SNA	
	3711-003409	HEADER-BOARD TO CABLE;BOX,3P,1R,2mm,STRA		SNA	
	3711-003969	HEADER-BOARD TO CABLE;BOX,2P,1R,2.5mm,ST		SNA	
	3711-004487	HEADER-BOARD TO BOARD;BOX,80P,2R,0.8MM,S		SA	
	3711-005861	HEADER-BOARD TO BOARD;BOX,40P,2R,0.8MM,S		SA	
	6003-000282	SCREW-TAPTITE;BH,+,B,M3,L8,ZPC(BLK),SWCH		SA	
	6107-001160	SPRING-TS;SUS304,-,PI0.45,D5.45,L19.8,-,		SA	
	6902-000664	BAG CONDUCTIVE;LLDPE,T0.1,W420,L400,BLK,		SNA	
	JB39-00128A	CBF HARNESS-P1284 FG;SF-430,UL1007,#18,1	H1192	SA	
	JC02-00044A	TONER-GRINDED;ML-3560,TUFTONE YK-5,-,8.1		SNA	
	JC13-00028A	IC ASIC-SPGPV3;SPGPV3,ML-2550_VE,496PIN,		SA	
	JC39-00465A	CBF HARNESS-EXIT;ML-3560,CBF,UL 1061,3PI	H1247	SA	
	JC39-00478A	CBF HARNESS-FUSEROPEN;ML-3560,CBF,UL 106	H1250	SA	
	JC39-00479A	CBF HARNESS-FEED;ML-3560,CBF,UL 1061,3PI	H1248	SA	
	JC41-00068B	PCB-FUSER SWITCH;ML-3560,FR-1,1LAYER,-,1		SNA	
	JC41-00143A	PCB-MOTOR GND;ML-1210,FR-1,1L,-,1.6T,39		SNA	
	JC41-00178A	PCB-PTL2 B'D;ML-2150,FR-1,1LAYER,-,1.6T,		SNA	
	JC41-00271A	PCB MAIN-MAIN;ML-3560,FR-4,6L,-,1.6T,154		SNA	

Service: SA(Service Available), SNA(Service not Available)

Draw # (Section-No.)	Parts Code	Description	Qt'y	Service	Remark
	JC61-00026A	SPRING ETC-TS-CHARGE APOLLO;SF-5100,SUS3		SNA	
	JC61-00033A	SPRING ETC-ARM. L;ML-6060,SWP-B,-,-,-,8.		SNA	
	JC61-00034A	SPRING ETC-ARM. R;ML-6060,SWP-B,-,-,-,8.		SNA	
	JC61-00391A	SPRING ETC-DUPLEX COVER;ML-9400W,SUS304W	Z4169	SA	
	JC61-01185A	FRAME-M-DEV LOWER;ML-3560,ABS+GF20,-,HB,		SNA	
	JC61-01187A	BRACKET-P-DEV LOWER;ML-3560,SECC,T0.8,24		SNA	
	JC61-01188A	BRACKET-P-COUPLER;ML-3560,SPCC+NI,1.2T,1		SNA	
	JC61-01191A	FRAME-M-DEV CLEAN;ML-3560,ABS+GF20,-,HB,		SNA	
	JC61-01194A	PLATE-M-DEV R;ML-3560,ABS,T2,20.9,54.69,		SNA	
	JC61-01196A	HOLDER-DEV;ML-3560,LDPE,2,8,317,RED,-		SNA	
	JC61-01579A	HOLDER-P-REGI;ML-3560,BRONZE SINTERED,-,		SNA	
	JC61-70927A	SPRING ETC-DEV_L;ML-7000,-,D0.6,-,5.6,20		SNA	
	JC61-70929A	SPRING ETC-HV LARGE;ML-5000A,SUS304-WPB,	Z4197	SA	
	JC62-00090A	SEAL-FRAME LOWER;ML-1710,URETHAN FORM ,-		SNA	
	JC62-00137A	SEAL-FRAME LOWER R2;SCX-4920N,URETHAN FO		SNA	
	JC62-00141A	SEAL-DAMPER;SCX-6320F,PORON(LE20),BLK,5T		SNA	
	JC62-00160A	SEAL-DEV;ML-3560,FELT+PORON,-,T2.5,5.2,3		SNA	
	JC63-00076A	COVER-WINDOW SF-530;SF-530,PVC FILM,T0.	M0402	SA	
	JC63-00111A	COVER-M-SHUTTER;ML-2150,ABS,1.5,-,294.1,		SNA	
	JC63-00705A	COVER-M-OP PANEL_SEC;ML-3560,ABS,T2.5,W1		SA	
	JC63-00709A	SHEET-FILM REAR;ML-3560,PET,0.075,11.2,2		SNA	
	JC63-00902A	GROUND-P-PICK_UP;ML-3560,C5210P,T0.2,18,		SNA	
	JC65-00007A	TERMINAL-P_PTL 2;ML-2150,PB(C5210P),-,-,	K4273	SA	
	JC66-00535A	SHAFT-OPC;ML-2150,SUS303,-,6,-,-,-		SNA	
	JC66-00844A	GEAR-M COUPLER;ML-3560,POM,0.8,17,16.3,B		SNA	
	JC66-00845A	GEAR-M DEV;ML-3560,POM,0.6,19,6,NTR,13.3		SNA	
	JC66-00846A	GEAR-M SR;ML-3560,POM,0.6,20,7.5,NTR,13.		SNA	
	JC66-00847A	GEAR-M IDLE 28;ML-3560,POM,0.6,28,9.6,NT		SNA	
	JC66-00848A	GEAR-M RDCN AGI;ML-3560,POM,0.6/0.8,49/1		SNA	
	JC66-00849A	ARM-M SHUTTER L;ML-3560,HIPS,HB,5.7,43.7		SNA	
	JC66-00850A	ARM-M SHUTTER R;ML-3560,HIPS,HB,5.7,43.7		SNA	
	JC66-00905A	SHAFT-DEV;ML-3560,SUM24L+NI,280.0,¥Õ5,-,S		NA	
	JC66-00908A	ROLLER-DEV;ML-3560,NBR,D16,232,-,-,-		SNA	
	JC66-40919A	GEAR-AGITATOR;ML-7000,POM(NW-02),M0.8,Z4		SNA	
	JC67-00033A	CAP-M-SENSOR;ML-2150,HIPS,1.5,21.27,60.3		SNA	
	JC67-00035A	CAP-M-WIRE PTL UPPER;ML-2150,PC(NH-1023)	C1016	SA	
	JC67-00047A	CAP-M_BUSHING ACTUATOR;ML-2150,POM,-,-,-	A0003	SA	
	JC67-00088A	COUPLER-M-DEV;ML-3560,POM,D20,-,NTR,-		SNA	
	JC67-00089A	CAP-M DEV R;ML-3560,PC,T2.5,52.07,50.89,		SNA	
	JC67-00091A	CAP-M DEV L;ML-3560,PC,T2.5,36.62,25.91,		SNA	
	JC68-00274A	LABEL(R)-RIBBON;SF-5100,100,-,-,BLK,,,,,		SNA	
	JC68-00408A	LABEL(R)-LV FUSER;COMMON,PVC,-,110V,-,,,		SNA	
	JC68-01134A	LABEL(P)-BLANK(FUSER);ML-1710D3,-,WHITE		SNA	
	JC68-01525A	LABEL(R)-SEAL(DEVE);COMMON,-,TETRON,0.2T		SNA	
	JC68-01541A	MANUAL-TONER INSTALL;COMMON,SEC,-,-,ART1		SNA	
	JC68-01581A	LABEL(P)-CAUTION HOT;COMMON,SAMSUNG,PET,		SNA	
	JC68-10209B	LABEL(P)-PACK DEVE;ML-85,ART,34*84,G100,		SNA	
	JC68-10914D	LABEL(P)-SERIAL NO;ML-85,ART,70X15,G100,		SNA	
	JC70-40912A	ICT-SHAFT HV LARGE;ML-5000A,SWCH18A,-,¥÷	S4027	SA	
	JC72-00288A	PPR-SPACER DR;SF-5100,PET FILM, T0.1,-,-		SNA	
	JC72-00398A	PPR-FILM OPC;ML-6060,URETHANE,NTR,0.2T,-		SNA	
	JC72-00995A	PMO-STACKER LOCKER;ML-2150,PC,-,-,0810P,	L6053	SA	
	JC72-01302A	PMO-M-FLEXIBLE COUPLE;SCX-6320F,POM(M90-		SNA	
	JC72-01373A	SPONGE-COVER_R;ML-3560,POLYURETHANE,-,5,		SNA	
	JC72-01374A	SPONGE-COVER DUMMY;ML-3560,POLY URETHANE		SNA	
	JC72-40232A	PMO-CAP AGITATOR;ML-80,PP,BLK,-,-	F6162	SA	
	JC73-00046A	RPR-SEAL CLEAN L;ML-6060,TEFLON FELT,8.5		SNA	
	JC73-00047A	RPR-SEAL CLEAN R;ML-6060,TEFLON FELT,8.5		SNA	
	JC73-00053A	RPR-SEAL CLEAN SUB;ML-6060,URETHANE,5*9.		SNA	
	JC73-00101A	RPR-SEAL CLN BRKT;ML-6060,URETHANE FOAM,		SNA	
	JC73-10017A	RPR-SEAL_BLOCK;ML-80,POLYURETHANE FOAM,T		SNA	
	JC73-10937A	RPR-SEAL FRAME;ML-7000,URETHANE FOAM,13*		SNA	
	JC75-10965A	MEC-ROLLER_SUPPLY;ML-7000,SEC,-,-,-,-,-,		SNA	
	JC92-01475A	PBA MAIN-PTL1;ML-2150,SEC,KOREA,PTL1 B'D	M0248	SA	
	JC92-01477A	PBA MAIN-DEV;ML-2150,SEC,KOREA,DEV B'D,-		SNA	
	JC94-00861A	PHANTOM AU JC92-01704A		SNA	
	JC94-00865A	PHANTOM AU JC92-01512B		SNA	
	JC94-00866A	PHANTOM AU JC92-01262C		SNA	
	JC94-00868A	PHANTOM AU JC92-01511B		SNA	
	JC97-01688A	MEA UNIT-HOLDER CR;ML-2150,SAMSUNG,-,CAR		SNA	
	JC97-02212A	MEA UNIT-DRUM;ML-3560,SAMSUNG,-,OPC DRUM		SNA	

Service: SA(Service Available), SNA(Service not Available)

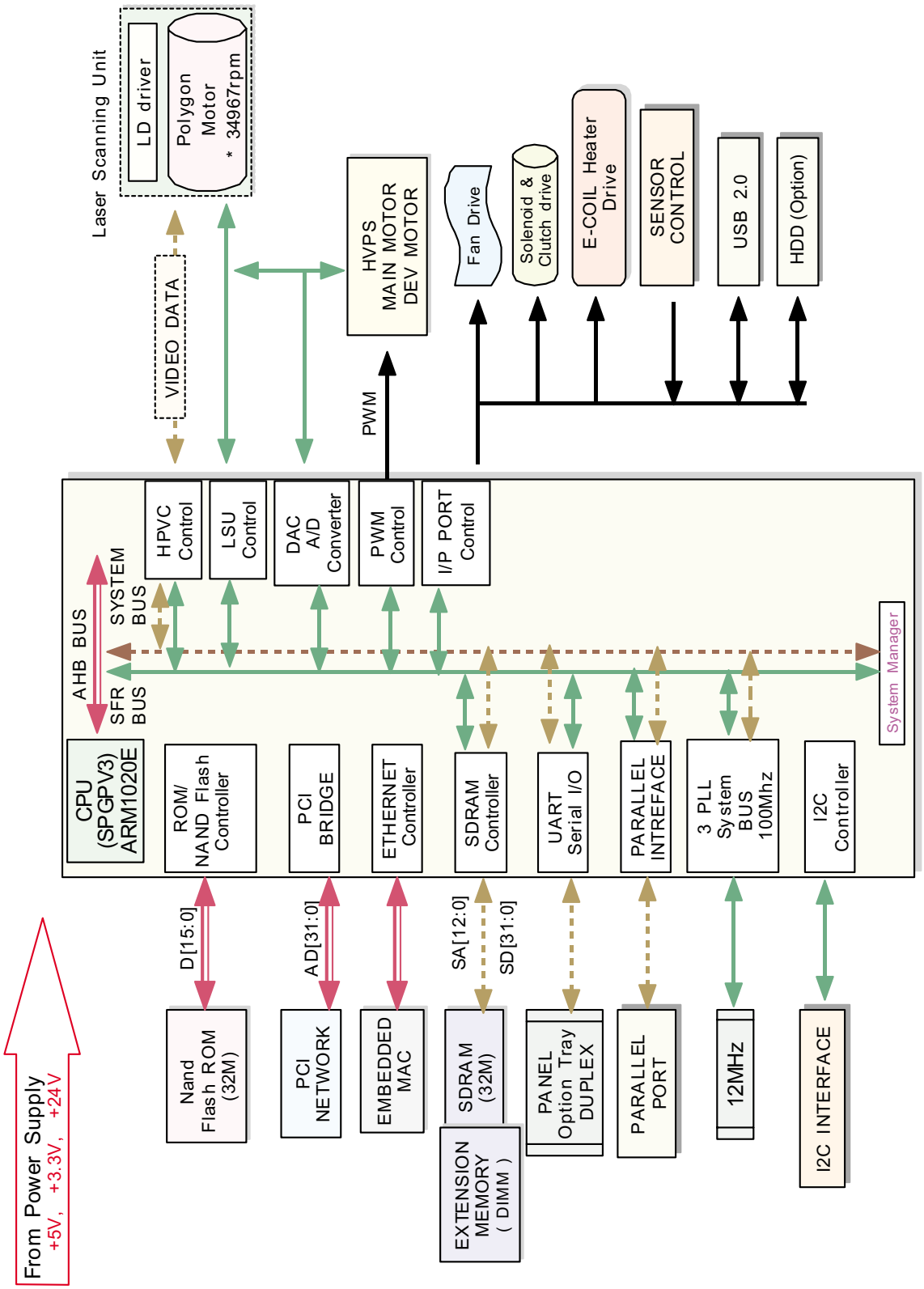
Draw # (Section-No.)	Parts Code	Description	Qt'y	Service	Remark
	JC97-02213A	MEA UNIT-HOPPER;ML-3560,SAMSUNG,-,HOPPER		SNA	
	JC97-02215A	MEA UNIT-DUCT;ML-3560,SAMSUNG,-,DUCT ASS		SNA	
	JC97-02224A	MEA UNIT-BLADE;ML-3560,SAMSUNG,-,DOCTOR		SNA	
	JC97-02225A	MEA UNIT-CLEAN;ML-3560,SAMSUNG,-,CLEANIN		SNA	
	JC97-02227A	MEA UNIT-ROLLER CR;ML-3560,SAMSUNG,-,ROL		SNA	
	JC97-02236A	MEA UNIT-FUSER_BK_G;ML-3560,XEROX,USA,ME		SNA	
	JC97-02237A	MEA UNIT-BUSHING SR;ML-3560,SAMSUNG,-,ID		SNA	
	JC97-02255A	MEA UNIT-PLATE DEV L;ML-3560,SAMSUNG,-,P		SNA	
	JC97-02382A	MEA UNIT-SPACER DR;ML-3560,-,-,SPACER-M-		SNA	
	JG74-10522A	MPR-RING MAGROLL;SF6000,POLY,ID6.1xOD11.		SNA	
	0201-001162	ADHESIVE-CYA;LOCTITE403,NTR,1250,20G		SNA	
	0203-001189	TAPE-ACETATE;#810,T0.05,W12,L65000,NTR		SNA	
	0205-000005	GREASE-BEARING;EP56,DIAMOND HYDRO FLUID,		SNA	
	0401-000005	DIODE-SWITCHING;1N4148,75V,150MA,DO-35,T		SA	
	0601-000003	LED;ROUND,RED/GRN,3.1MM,650/563NM,3.8X5.		SA	
	0601-001459	LED;ROUND,GRN,3mm,570nm		SA	
	1404-001360	THERMISTOR-NTC ASSY;7KOHM,-,3370K,0.3MW/		SA	
	2001-000019	R-CARBON(S);10OHM,5%,1/2W,AA,TP,2.4X6.4M		SA	
	2001-000502	R-CARBON;20OHM,5%,1/4W,AA,TP,2.4X6.4MM		SA	
	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608		SA	
	2007-000134	R-CHIP;33Kohm,5%,1/10W,TP,1608		SA	
	2007-000539	R-CHIP;200ohm,5%,1/10W,TP,1608		SA	
	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608		SA	
	3404-000116	SWITCH-TACT;12V,50mA,160gf,6X6X3.6mm,SPS		SA	
	3405-001069	SWITCH-MICRO;125V,5A,30GF,SPDT		SNA	
	3501-000203	RELAY-MINIATURE;5V,200MW,1000MA,1FORMC,6		SA	
	3711-003035	HEADER-BOARD TO CABLE;BOX,14P,2R,2mm,STR		SA	
	3711-003410	HEADER-BOARD TO CABLE;BOX,4P,1R,2mm,STRA		SNA	
	3711-003968	HEADER-BOARD TO CABLE;BOX,3P,1R,2.5mm,ST		SA	
	3711-004349	HEADER-BOARD TO CABLE;BOX,3P,1R,2MM,STRA		SA	
	3711-004379	HEADER-BOARD TO CABLE;BOX,4P,1R,2MM,STRA		SA	
	6107-000103	SPRING-CS;STS304-WPB,DEGRE,PI0.45,D3.45,		SNA	
	6601-001004	BEARING-BALL;DDL-1060ZZ,ID6,OD10,L3,FE-C		SNA	
	JC07-00005A	LCD-PANEL;VHC1625SLYC9-1,ML-2150,16X2,36	L3018	SA	
	JC39-00249A	CBF HARNESS-LCD;ML-2150,WIRE,UL2877,8PIN	H1118	SA	
	JC39-00251A	CBF HARNESS-PANEL;ML-2150,CBF,UL 1061,6P	H1193	SA	
	JC39-00464A	CBF HARNESS-COVEROPEN;ML-3560,CBF,UL 106	H1244	SA	
	JC41-00175A	PCB-PTL1 B'D;ML-2150,FR-1,1LAYER,-,1.6T,		SNA	
	JC41-00197B	PCB-EMPTY SENSOR;ML-3560,FR-1,1LAYER,-,1		SNA	
	JC41-00288A	PCB-COVEROPEN;ML-3560,FR-1,1LAYER,-,1.6T		SNA	
	JC41-00289A	PCB-JOINT B'D;ML-3560,FR-1,1LAYER,-,1.6T		SNA	
	JC41-00307A	PCB-FEED;ML-3560,FR-1,1LAYER,-,1.6T,11X2		SNA	
	JC41-00308A	PCB-EXIT;ML-3560,FR-1,1LAYER,-,1.6T,45X1		SNA	
	JC47-00010A	LAMP-PTL;90-20-210-167,ML-2150,4.1 X 9.4	L1019	SA	
	JC60-00012A	SPACER-M-DR;ML-3560,POM,-,ID10,OD16.415,		SNA	
	JC61-00631A	HOLDER-M-CR;ML-2150,PC,1.3,-,-,NTR,-		SNA	
	JC61-01186A	FRAME-M-DEV CAP;ML-3560,HIPS,-,HB,BLK,T2		SNA	
	JC61-01189A	BRACKET-P-BLADE;ML-3560,SPCC+NI PLT,T1.2		SNA	
	JC61-01190A	BRACKET-P-CLEAN;ML-3560,SECC,T1.2,255.5,		SNA	
	JC61-01192A	FRAME-M-DEV DUCT;ML-3560,HIPS,-,HB,BLK,T		SNA	
	JC61-01195A	PLATE-M-DEV L;ML-3560,ABS,T2,15.5,54.69,		SNA	
	JC61-01197A	FRAME-M-HOPPER;ML-3560,HIPS,-,HB,BLK,T2,		SNA	
	JC61-01198A	BUSH-M-SUPPLY;ML-3560,POM,ID4.0,OD6.4,9.		SNA	
	JC61-01578A	PLATE-P-ACTUATOR COVER;ML-3560,SUS304,T0		SNA	
	JC62-00158A	SEAL-HOPPER SIDE;ML-3560,POLYURETHANE FO		SNA	
	JC63-00708A	SHEET-FILM DUCT;ML-3560,PET,0.188,9.5,22		SNA	
	JC63-00724A	COVER-M-SLIDE SENSOR;ML-3560,NYLON+GF25%		SNA	
	JC63-00903A	FELT-CLEAN TONER;ML-3560,ARAMID FIBER,5.		SNA	
	JC65-00002A	TERMINAL-P_PTL L;ML-2060,PB(C5210P),-,-,	K4274	SA	
	JC65-00003A	TERMINAL-P_PTL R;ML-2060,PB(C5210P),-,-,	K4275	SA	
	JC66-00435A	GEAR-IDLE CR 17;ML-2150,POM, F20-03,0.6,		SNA	
	JC66-00841A	GEAR-M-TURBINE;ML-3560,POM,0.6,16,16.8,B		SNA	
	JC66-00842A	GEAR-M-OPC MAIN;ML-3560,PC,0.8,40,-,BLK,		SNA	
	JC66-00843A	GEAR-M ID TURBINE;ML-3560,POM,0.6/0.6,16		SNA	
	JC66-00869B	GEAR-M_IDLE 25;ML-3560,RAL4032,1,19,-,YE		SNA	
	JC66-00907A	DRUM-OPC;ML-3560,AL 5N01,-,30.04,255,-,U		SNA	
	JC66-00930A	ROLLER-CHARGE;ML-3560,NBR,D12.2,L232,NTR		SNA	
	JC66-40369A	GEAR-OPC R;ML-80,PC LS1250,M0.6,Z50,-,BL		SNA	
	JC68-01633A	LABEL(P)-HOLD RE OPEN;ML-3560,-,PET,T0.0		SNA	
	JC70-00509A	ELECTRODE-P-DEV;ML-3560,SUS301-CSP,-,26.		SNA	
	JC70-00510A	ELECTRODE-P-SR;ML-3560,SUS301-CSP,-,32.1		SNA	

Service: SA(Service Available), SNA(Service not Available)

Draw # (Section-No.)	Parts Code	Description	Qt'y	Service	Remark
	JC70-00511A	IPR-P-BLADE-DOCTOR;ML-3560,C1720R-1/2HM,		SNA	
	JC70-10989A	IPR-ELECTRODE CHARGE;ML-5000,SUS301 1/2H		SNA	
	JC71-00050A	NPR-EARTH OPC;-,ML-2150,C5210P,0.2,-,-,-		SNA	
	JC72-00082A	PMO-BUSHING AGI R;SF-5100,POM,BLK,-,-,-,		SNA	
	JC72-00508A	PMO-HANDLE DEVE;ML-6060,PC,BLK,-,-,HB,-,		SNA	
	JC72-00509A	PMO-HOLDER HANDLE;ML-6060,HIPS,BLK,-,-,H		SNA	
	JC72-01352A	PMO-M TURBINE;ML-3560,ABS,BLK,¥Õ8, 249.7S		NA	
	JC72-10008A	PPR-FILM_HOPPER;ML-80,PP+PE,-,-,-,-,-,-,		SNA	
	JC72-40332A	PMO-BUSHING_CHARGE;ML-80,POM,BLK,HB,-		SNA	
	JC73-00225A	RUBBER-IDLE;ML-3560,EP+NR,D=26.8,30,6.5,	C4023	SA	
	JC73-20902B	REX-BLADE CLEAN-B;ML-2150,URETHANE RUBBE		SNA	
	JC73-40906A	RMO-SEAL AGITATOR;ML-5000,SANTOPRENE,-,-		SNA	
	JC94-00288A	PHANTOM AU JC92-01336A		SNA	
	JC94-00467A	PHANTOM AU JC92-01477A		SNA	
	JC94-00862A	PHANTOM AU JC92-01705A		SNA	
	JC94-00894A	PHANTOM AU JC92-01473C		SNA	
	JC96-03653A	ELA UNIT-THERMOSTAT L;ML-3560,SEC,USA,TH	K3145	SA	
	JC96-03654A	ELA UNIT-ELECTRODE R;ML-3560,SEC,USA,ELE	K3058	SA	
	JC96-03722A	ELA UNIT-HEAT 110V;ML-3560,SEC,-,FUSER,H		SA	
	JC97-01088A	MEA RACK-BUSHING AGI;ML-6000,SEC,KOR,POM		SNA	
	JC97-02214A	MEA UNIT-AGITATOR;ML-3560,SAMSUNG,-,AGIT		SNA	
	0401-000116	DIODE-SWITCHING;MMSD914T1,100V,200MA,SOD		SNA	
	0402-000129	DIODE-RECTIFIER;1N4003,200V,1A,DO-41,TP		SA	
	0407-000101	DIODE-ARRAY;DA204K,20V,100mA,C2-3,SOT-23		SA	
	0501-000279	TR-SMALL SIGNAL;KSA1182-Y,PNP,150mW,SOT-		SA	
	0501-000457	TR-SMALL SIGNAL;MMBT2222A,NPN,350MW,SOT-		SA	
	1103-001183	IC-EEPROM;24C04,512x8,SOP,8P,5x4mm,2.5/5		SA	
	2001-000281	R-CARBON;100OHM,5%,1/8W,AA,TP,1.8X3.2MM		SA	
	2001-000591	R-CARBON;3.3KOHM,5%,1/8W,AA,TP,1.8X3.2MM		SA	
	2007-000075	R-CHIP;220ohm,5%,1/10W,TP,1608		SA	
	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608		SA	
	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608		SA	
	2007-000120	R-CHIP;680ohm,5%,1/10W,TP,1608		SA	
	2007-000293	R-CHIP;100ohm,5%,1/4W,TP,3216		SA	
	2007-000303	R-CHIP;10Kohm,5%,1/4W,TP,3216		SNA	
	2007-000402	R-CHIP;150ohm,5%,1/10W,TP,1608		SA	
	2201-000017	C-CERAMIC,DISC;1nF,10%,50V,Y5P,-,5x3.5mm		SA	
	2203-000236	C-CER,CHIP;0.1nF,5%,50V,C0G,1608		SA	
	2203-000440	C-CER,CHIP;1nF,10%,50V,X7R,1608		SA	
	2203-000626	C-CER,CHIP;0.022nF,5%,50V,C0G,1608		SA	
	2203-000815	C-CER,CHIP;0.033nF,5%,50V,C0G,1608		SA	
	2203-000998	C-CER,CHIP;0.047nF,5%,50V,C0G,1608		SA	
	2802-001069	RESONATOR-CERAMIC;7.37MHz,0.5%,TP,4.7x4.		SNA	
	3404-000165	SWITCH-TACT;12V,50mA,160gf,6x6mm,SPST		SA	
	4712-001029	THERMOSTAT;125/250VAC,15/10A,170+-5C,0C,	K4280	SA	
	6006-000127	SCREW-MACHINE;WS,PH,+,M3,L6,ZPC(YEL),SWR		SNA	
	JB13-00004A	IC ASIC-OPE;SF-3100,HT48C5,SSOP,48P,16.1		SA	
	JC39-40511A	CBF HARNESS;ML-80,JUMPER,AWG22,52mm,SILV		SA	
	JC41-00176B	PCB-PANEL B'D;ML3560,FR-4,2LAYER,-,1.6T,		SNA	
	JC41-00179A	PCB-DEV B'D;ML-2150,FR-1,1LAYER,-,1.6T,5		SNA	
	JC41-00292A	PCB-TONER_SENSOR;ML-3560,FR-4,2LAYER,-,1		SNA	
	JC41-10517A	PCB-CASSETTE;ML-165,FR-4,2L,-,1.6MM,55*5		SNA	
	JC63-00710A	SHEET-FILM AGITATOR;ML-3560,PET,0.125,24		SNA	
	JC67-00100A	CAP-M-CARBON BRUSH;ML-3560,PET+GF30%,FR5		SNA	
	JC71-00057A	ELECTRODE-P-FU_R_08;ML-3560,T0.8,20.2,32		SNA	
	JC72-01353A	PMO-M AGITATOR;ML-3560,ABS,BLK,223.6,-,-		SNA	
	JC72-41050A	PMO-BUSHING AGITATOR;ML-7000,POM(M90-44)		SNA	
	JC73-40902A	RMO-SEAL AGITATOR;ML-7000,SANTOPRENE,9*4		SNA	
	JC96-03655A	ELA UNIT-CARBON&SP;ML-3560,SEC,USA,BRUSH	K3054	SA	
	JC67-00104A	BRUSH-CARBON;ML-3560,SM190,-,D9,9.5,-,-		SNA	

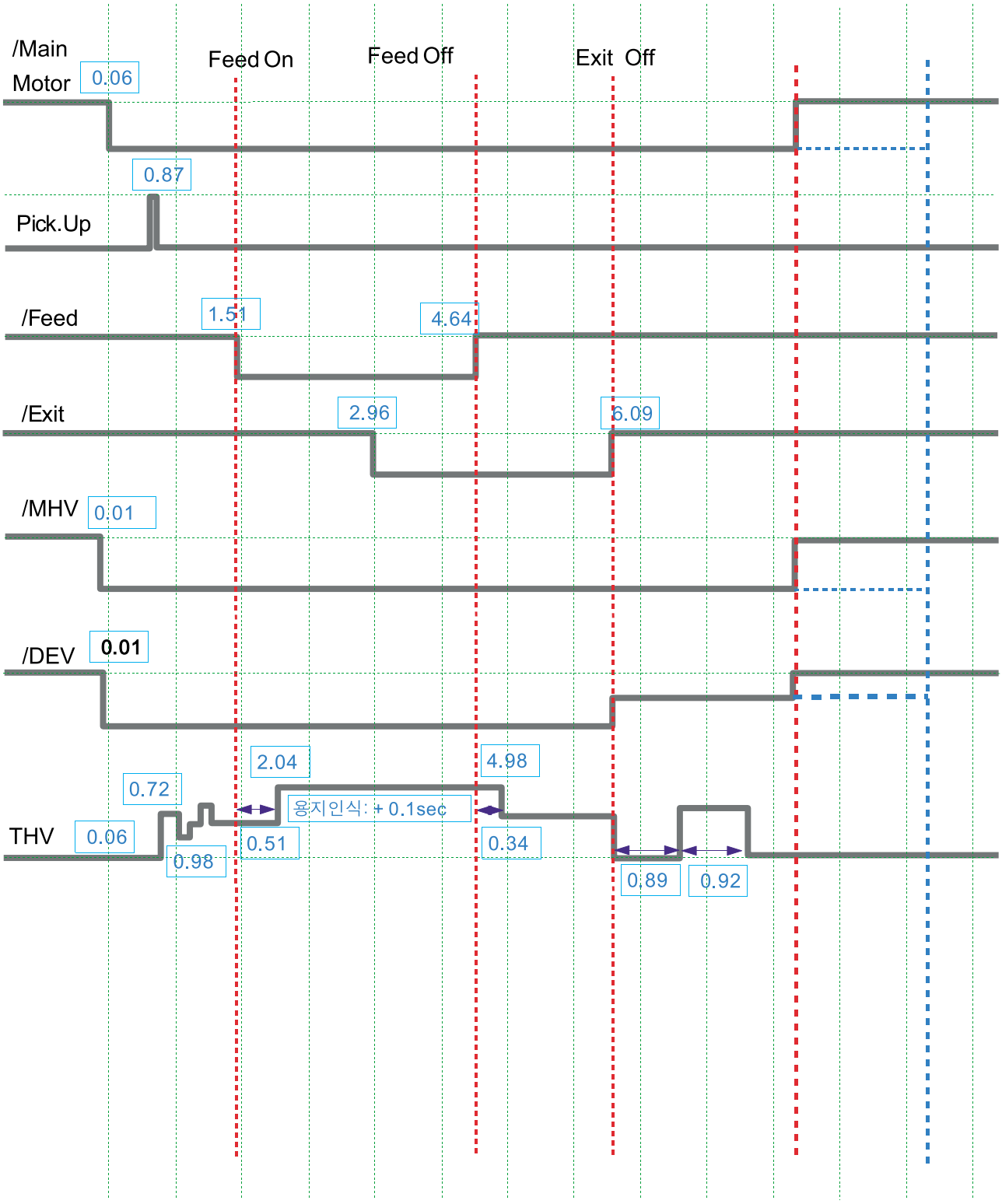
9. Block Diagram

9.1 System Block Diagram

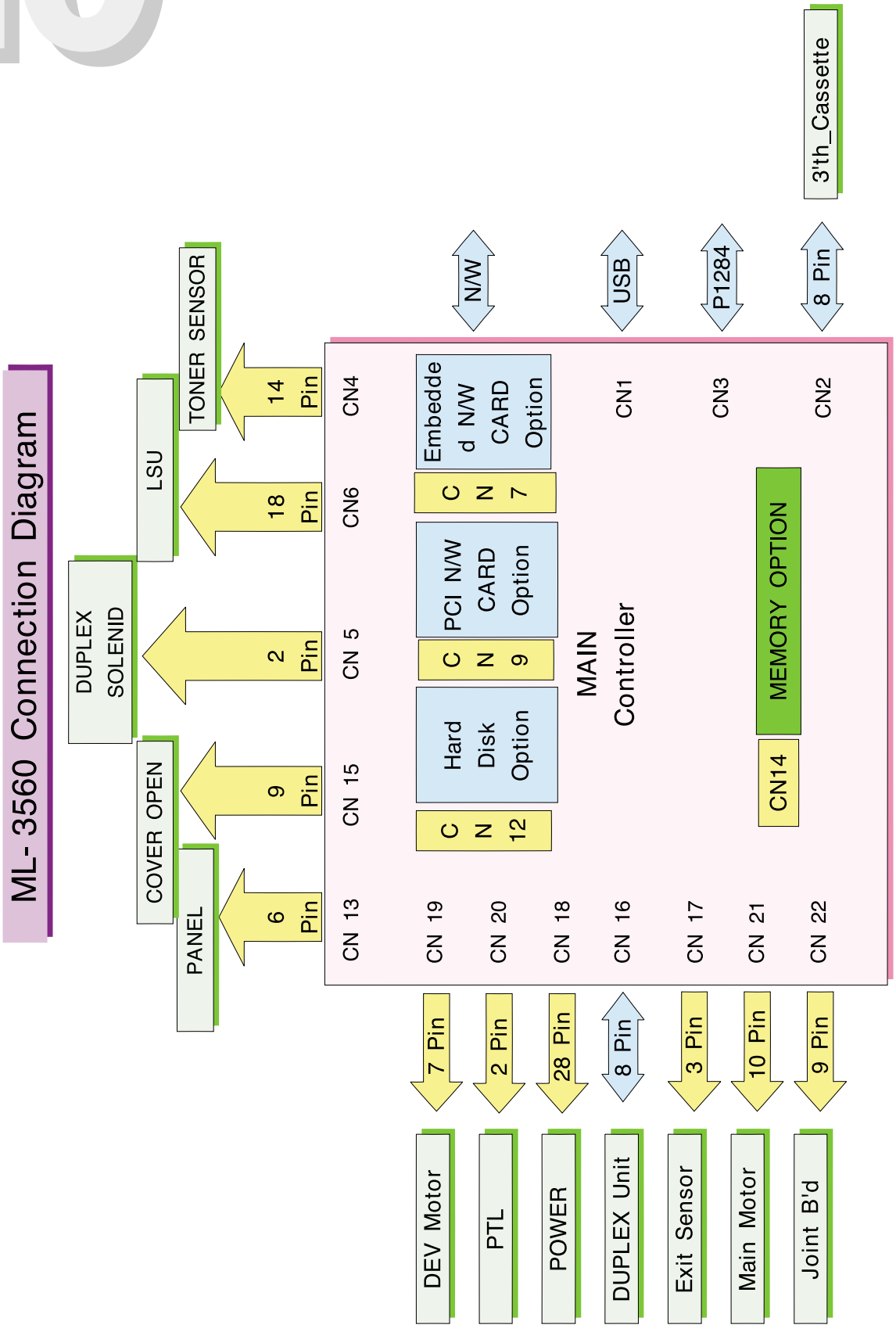


9.2 System Timing Chart

<1Page Printing-A4 from cassette>



10. Connection Diagram



[Sinal Description Table]

CN 18 **(POWER)** Main ↔ SMPS/HVPS

Pin	Signal Name	Pin	Signal Name
1	DEVE_AC-PWM	2	←
2	24V	1	←
3	DEVE_AC_Vpp	4	←
4	24V	3	←
5	DEVE_AC_CON	6	←
6	24V	5	←
7	DEVE_VDC-PWM	8	←
8	24VS	7	←
9	FUSER_BAIS_PWM	10	←
10	3.3V	9	←
11	MHV_PWM	12	←
12	3.3V	11	←
13	FAN_SMPS	14	←
14	3.3V	13	←
15	THV_PWM	16	←
16	VCC	15	←
17	THV_READ	18	←
18	VCC	17	←
19	nTHV_EN	20	←
20	FAN_FEEDBACK	19	←
21	FUSER COVER	22	←
22	GND	21	←
23	GND	24	←
24	GND	23	←
25	FUSER_ON	26	←
26	GND	25	←
27	GND	28	←
28	GND	27	GND

CN 16 **(DUPLEX)** MAIN ↔ DUPLEX B'D

Pin	Signal Name	Pin	Signal Name
1	24VS	1	←
2	3.3V	2	←
3	3.3V	3	←
4	DUPLEX_RXD	4	←
5	DUPLEX_DETECT	5	GND(DETECT)
6	DUPLEX_TXD	6	←
7	GND	7	←
8	GND	8	←
9	GND		←

CN 17 **(EXIT SENSOR)** MAIN ↔ EXITSENSOR

Pin	Signal Name	Pin	Signal Name
1	GND	2	←
2	3.3V	1	←
3	P_EIXT	4	←

CN 21 **(DC_MOT)** MAIN ↔ MAIN MOTOR

Pin	Signal Name	Pin	Signal Name
1	24VS	1	←
2	24VS	2	←
3	GND	3	←
4	GND	4	←
5	GND	5	←
6	VCC	6	←
7	nMAIN_MOT_ON	7	←
8	MAIN_MOT_READY	8	←
9	MAIN_MOT_CLK	9	←
10	NC		

CN 22 **(JOINT)** MAIN ↔ JOINT B'D

Pin	Signal Name	Pin	Signal Name
1	24VS	1	←
2	MAIN CLUTCH	2	←
3	MP_CLUTCH	3	←
4	REGI_CLUTCH	4	←
5	MP_EMPTY	5	←
6	3.3V	6	←
7	CASSESTTE_DETECT	7	←
8	GND	8	←
9	TMEP1	9	←

CN 19 **(DEV_MOT)** MAIN ↔ DEVE MOTOR

Pin	Signal Name	Pin	Signal Name
1	24VS	1	←
2	GND	2	←
3	nDEV_MOT_READY	3	←
4	nDEV_MOT_CLK	4	←
5	nDEV_MOT_ON	5	←
6	nDEV_MOT_DIR	6	←
7	NC		

CN 20 **(PTL)** MAIN↔PTL

Pin	Signal Name	Pin	Signal Name
1	VCC	1	←
2	PTL_ON	2	←

CN 13 **(PANEL)** MAIN ↔ PANEL

Pin	Signal Name	Pin	Signal Name
1	VCC	1	←
2	3.3V	2	←
3	PANEL_TXD	3	←
4	PANEL_RXD	4	←
5	nRSTOUT	5	←
6	GND	6	←

CN 15 **(COVER_OPEN)** MAIN ↔ COVEROPEN

Pin	Signal Name	Pin	Signal Name
1	24V	1	←
2	24V	2	←
3	24VS	3	←
4	24VS	4	←
5	NC	5	←
6	COVER_OPEN	6	←
7	NC	7	←
8	VCC	8	←
9	LSU_5V	9	←

CN 5 **(DPX_SOL)** MAIN↔DUPLEX SOLENOIDt

Pin	Signal Name	Pin	Signal Name
1	DUPLEX_SOL	1	←
2	24VS	2	←

CN 6 **(LSU)** MAIN ↔ LSU

Pin	Signal Name	Pin	Signal Name
1	GND	2	← (LD DRIVER)
2	LSU_5V	1	←
3	LD_POWER2	4	←
4	LD_POWER1	3	←
5	VDO1_minus	6	←
6	VDO1_plus	5	←
7	VDO2_minus	8	←
8	VDO1_plus	7	←
9	nLD_EN	10	←
10	nSH1	9	←
11	nHSTNC_plus	12	←
12	nSH2	11	←
13	nHSTNC_minus	13	←
14	LSU_CLK	1	← (P-MOTOR)
15	nREADY	2	←
16	LSU_MOT_ON	3	←
17	GND	4	←
18	GND	5	←

CN 4 **(CART)** MAIN ↔ TONER SENSOR

Pin	Signal Name	Pin	Signal Name
1	24V	2	←
2	P_SIZE3	1	←
3	FAN_SMPS	4	←
4	P_SIZE2	3	←
5	FAN_MAIN	6	←
6	P_SIZE1	5	←
7	GND	8	←
8	3.3V	7	←
9	OUTBIN_FULL	10	←
10	CART_CLK	9	←
11	P_REGI	12	←
12	CART_DOUT/CART_DIN	11	←
13	P_EMPTY	14	←
14	GND	13	←

CN 2 **(SCF)** MAIN ↔ SCF B'D

Pin	Signal Name	Pin	Signal Name
1	24V	1	←
2	3.3V	2	←
3	SCF_EMPTY	3	3.3V
4	SCF_RXD	4	←
5	SCF_DETECT	5	←
6	SCF_TXD	6	←
7	GND	7	←
8	GND	8	←
9	GND	9	←
10	GND	10	←
11	GND		

CN 23 **(THERM)** MAIN↔FUSER

Pin	Signal Name	Pin	Signal Name
1	THERM_IN	1	←
2	FUSER_ON	2	GND
3	FUSER_EN	3	FUSER_ON

ELECTRONICS

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